TRAFIKVERKET

PROCUREMENT STRATEGY

The West Link Project

Contract works, preparatory works and services

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Contents

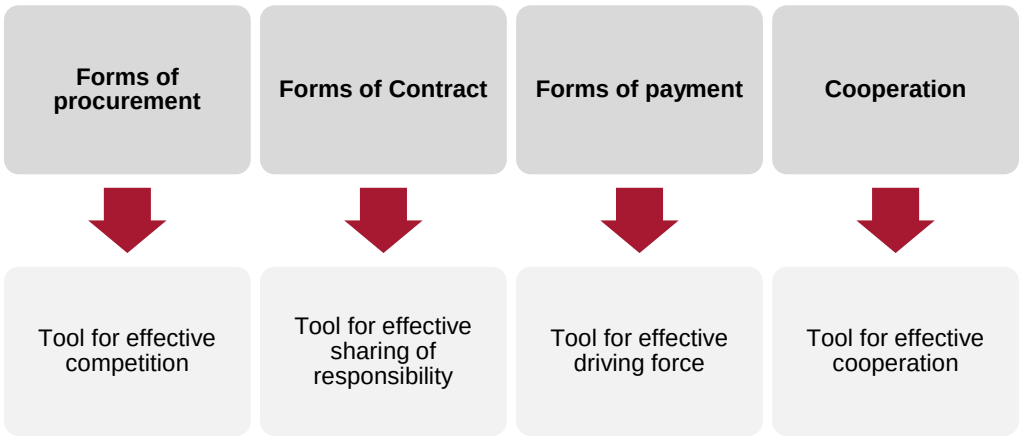
1. Introduction

Scope, purpose and delimitations

This document has been drawn up as basic input for decision on procurement strategy for the West Link Project. In terms of content, the strategy follows the Swedish Transport Administration Guidelines entitled *Choice of Business Form for the Swedish Transport Administration's Investment Activity Contracts* (TDOK 2010:238).

The document gives an account of the project strategy with respect to division into contracts and condition-setting preparatory works and design services, choice of business form including procurement forms of procurement, forms of contract, forms of payment and cooperation. Following decision, the document will serve as a governing guideline for respective contracts in a detailed choice of business and the design and structure of tender enquiry documents.

The procurement strategy that the report results in has been chosen on the basis of the overall goals and strategies of the West Link Project, Major Projects and Purchasing with respect to the specific preconditions of the respective contract and after dialogue with the supplier market.



The choice of business form for contracts in the Swedish Transport Administration's investment activities, from the Transport Administration's business system invest process.

Implementation

Fundamental input and the basic framework for this document have been drawn up during 2013 in close cooperation between the project management and personnel engaged in the West Link Project. A working group consisting of Per-Inge Söderström (Production Manager, West Link Project) Joakim Jonsson (Design Manager, West Link Project) Glenn Svensén (Qualified Purchaser, West Link Project) and Lillian Brunbäck (Purchasing Manager, West Link Project) has been appointed. A reference group consisting of Bo Larsson (Project Director, West Link Project), Leif Jendeby (Design Manager Engineering, West Link Project) and Knut Hermansson (consultant and formerly project manager for the Göta Tunnel) have been asked to provide advice. Empirical experience has above all been collected through dialogue with a large number of contractors and by means of study visits to the clients for major infrastructure projects, both

within the Swedish Transport Administration and among European colleagues. This experience is described in greater detail in Chapters 3 and 4.

2. The West Link Project

Description of the Project

The West Link is an approximately 8 km-long commuter train connection through Central Göteborg, 6 km of which is carried in tunnels. Three new stations are to be built: one new station section at Göteborg Central Station and two entirely new stations at Haga and Korsvägen. The purpose of the West Link is to facilitate travel within Göteborg and Western Sweden, provide increased capacity for commuter train traffic and increase accessibility to the city. The West Link will reduce the vulnerability of the railway system and is a precondition for the development of rail traffic in Western Sweden. The West Link is being constructed in an inner city environment, the structures from the structural engineering point of view are extremely advanced, and considerable consideratioon has to be given to the surroundings, the environment and the cultural environment. The depth and breadth of the of the excavations that arte needed for the West Link in combination with an underground that consists partly of loosely compacted clay are by Swedish standards unique, and will require considerable competence on the part of the Contractor.

Time schedule

Start of construction: 2018
Start of traffic: 2026

Costs and joint financing

The West Link is part of the national infrastructure plan for 2010-2021 and is one of the projects in the West of Sweden Package, in which regional and local financing are included. The investments are in the order of approximately SEK 20 billion (2009 price level).

Objects for procurement

The coming procurements for the West Link Project can be basically subdivided into the following parts:

- Production of the tender enquiry documents and design in readiness for the contracts
- Preparatory works: Utility line rerouting, temporary works, relocation of facilities, etc.
- Excavated rock and soil management
- Contracts consisting of:
  - A total of 4 km of rock tunnel with access/production tunnels
  - A total of 2 km of concrete tunnels through soil and clay of varying depth
  - 3 new stations in rock/soil/clay

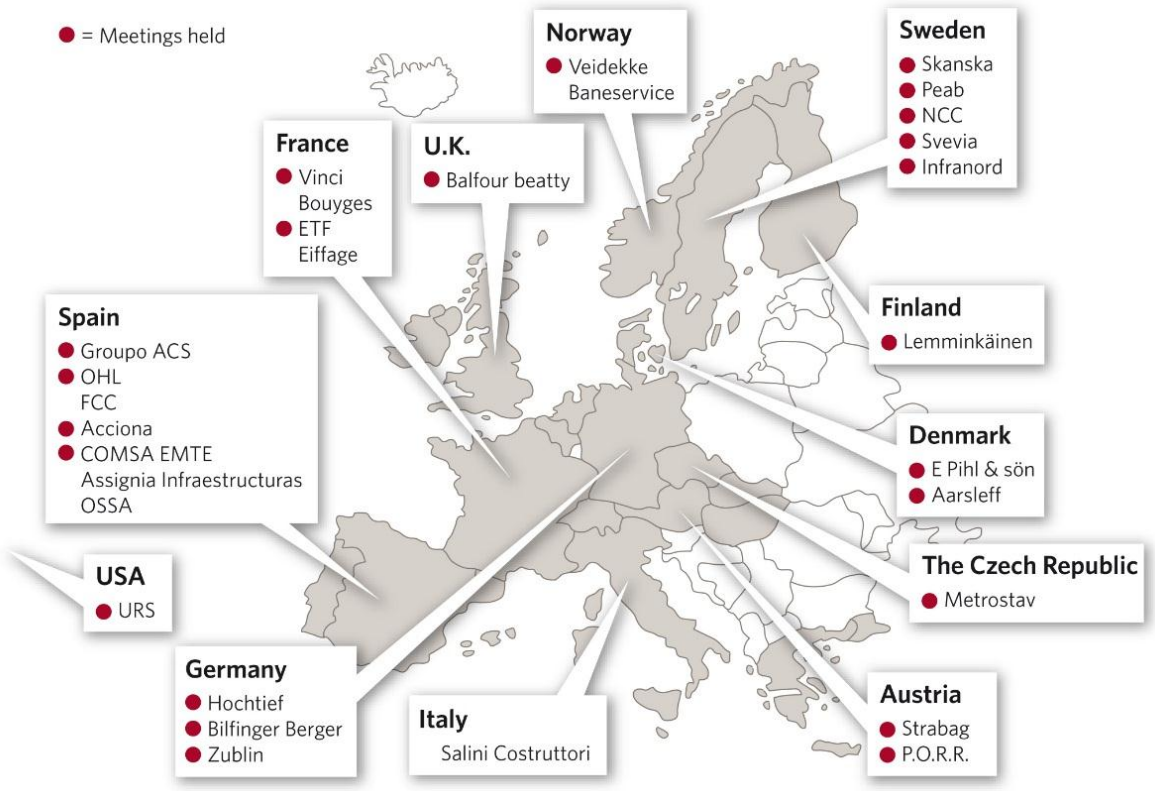
- Installations
- BEST (Track, Electrical, Signal and Telecom Works)

3. Market situation and suppliers

The Project is preparing to make procurements for a total of some SEK 17 billion. In order to make sure that the annual quantity of procurements will not be so great that it has a negative impact on the potential, interest and possibility of the market to submit tender, it is very important that the project procurements are as far as possible distributed over the project period. The Project must also monitor and coordinate the procurements with other concurrent procurements, and thereby avoid the tender enquiry documents for the Project being distributed simultaneously with them. During the spring, the West Link Project conducted a supplier market analysis in conjunction with purchasing development (see separate document entitled "West Link Supplier Market Analysis"). In the analysis, a description is given of the construction and civil engineering market, the construction sector economy and other, resource-oriented competitive projects. The analysis was used as basic input for determining which suppliers would be invited to take part in suppliers' dialogues.

Suppliers' dialogues

During the early summer of 2013, the Project conducted a total of 23 contractors' dialogues with companies from 11 countries. Five of the world's 10 largest construction and civil engineering companies visited the West Link Project. Those contractors who have been met by the Project have all been major contractor companies with annual sales of between SEK 10 and 300 billion. Within this segment are most of the suppliers with the right competence to construct the main West Link contracts and experience from working on major projects in large cities.



Suppliers who were invited to attend the dialogue meetings. A red dot in front of the name indicates that the meeting was held.

Strategy for achieving competition

The strategy employed by the Project for achieving good competition is largely a question of packaging the procurements in a way that attracts the type of suppliers who the Project believes can construct the West Link at the right time, at the right price and with the right content. The conclusions reached by the West Link Project with regard to packaging can be found in Chapter 6.

In addition to the right packaging, it is important to market the Project procurements to Swedish and international contractors. The purpose of this marketing is to increase the potential for achieving effective and favourable competition at the tendering stage by providing the market with a sound knowledge of the Project procurements. In order to increase the interest of the foreign contractors in the procurements, marketing activities that focus in particular on foreign contractors have been initiated in cooperation with the Swedish Transport Administration's Purchasing Development section centrally. The West Link Project is primarily targeted on European suppliers from the so-called Euroconstruct market (see separate document entitled "West Link Supplier Market Analysis").

The Project took part in the Transport Administration's International Suppliers' Day, in matchmaking at Nordic Rail and with articles in the Transport Administration's newsletter for international suppliers.

Since the number of French suppliers to the Swedish Transport Administration is relatively few in comparison with market shares on the global civil engineering market, the Project decided to hold supplier meetings in France

together with the E4 Stockholm Bypass Project and the Norwegian Jernbaneverket. The Day, which was organised by the French Trade and Invest Council, attracted a large number of contractors and can be regarded as a good example of how, at a reasonable cost, it is possible to market a project in cooperation with other projects that are of interest to suppliers.

The Project's home page and own digital newsletter is available in both Swedish and English, and are distributed to those suppliers who are interested. The marketing activities on national and international days will continue, and in preparation for prequalification and the procurement of coming contracts the activities will be intensified to include visits to trade fairs and information meetings.

4. Experience from other projects

Concurrent projects that compete in terms of resources during the tendering and construction stages of the Project are described in the Suppliers' Market Analysis (see separate document). The West Link Project has a considerable exchange of experience between other national and international projects with regard to technology, organisation and other issues.

With regard to the Swedish Transport Administration's own projects, the West Link Project has had particularly close cooperation with the City Line Project and the E4 Stockholm Bypass Project. Descriptions are given below of the external projects and clients that the West Link Project has visited or specifically studied in closer detail.

ESS (Lund, Sweden)

European Spallation Source (ESS) is a planned joint European research facility that will be constructed in Lund. The structure has been calculated to cost approximately SEK 15 billion. The procurement has been conducted in the form of *ECI- Early Contractor Involvement*. The West Link Project will study the procurements prior to the Project with a special focus on the form of contract referred to as Turnkey Contract ECI.

Ulriks Tunnel 2010-2021 (Arna-Bergen, Norway)

The upgrading to double tracks between Arna and Bergen incorporates, among other things, the construction of 8 km of new tunnels. The project is budgeted to NOK 3 billion. The West Link Project is studying specific methods of procurement with alternative production methods for the tunnel, TBM or Drill and Blast. A visit for the exchange of information is planned for spring 2014.

Follobanen 2012-2020 (Oslo-Ski, Norway)

Follobanen is currently the largest transport project in Norway and includes Norway's longest rail tunnel, with a length of 20 km, 19.5 km of which will be bored using a TBM. The project is budgeted at NOK 21 billion. The West Link Project has made a special study of the prequalification documents for the project. The tender enquiry documents will be studied more closely in the future and procurement is expected to be completed in February 2014.

Fehmarn Belt, 2014-2020 (Denmark)

An 18 km-long connection with a submerged tunnel that contains both a motorway as well as a double-track railway. The construction costs amount to approximately DKR 46 billion consisting of four extremely large contracts. The West Link Project is making a particular study of the procurement process with prequalification of 3-5 consortia for each contract and evaluation based on competitively-oriented dialogue.

Crossrail -2019 (London, Great Britain)

A double-track commuter train tunnel that is being built beneath Central London with seven new subsurface stations. Many of the existing stations will also be upgraded. The project is calculated to cost somewhere in the region of GBP 16 billion. The West Link Project is studying, among other things, the forms of payment for the project

City Loop (Helsinki, Finland)

The City Loop in Helsinki is a planned railway loop for local trains passing under the centre of Helsinki. The City Loop will be just over 7 km long, 6 km of which will run in tunnels. The construction is anticipated to cost EUR 750 million. The project teams visited each other in autumn 2013 in order to exchange information.

Lainzer Tunnel (Vienna, Austria)

The Lainzer Tunnel is a 13 km-long railway tunnel passing through Vienna, Austria. Construction work started in 1999 and was completed in 2012 at a cost of EUR 1.3 billion. The West Link Project team has visited the Vienna project and exchanged information concerning, among other aspects, forms of contract and payment in preparation for the procurement strategy.

Durchmesserlinie (Zürich, Switzerland)

The facility is 9.6 km long and consists of two bridges, an underground station, the Weinberg Tunnel and widening of the tracks in Central Zürich at a construction cost of some CHF 1.8 billion. The West Link Project visited the Zürich project in spring 2013 in preparation for the procurement strategy and exchanged experience on forms of contract and packaging.

5. Preconditions for the strategy

Swedish Transport Administration guidelines for procurement

The Project follows the Swedish Transport Administration's *Client and Procurement Strategy* (TDOK 2011:196), and the transport Administration's purchasing process according to the business system with appurtenant reference documents.

The Swedish Transport Administration's overall preconditions

The Transport Administration's task – to create greater benefit for the money spent – is coordinated by the Productivity Office through the projects PIA, SISU 2013, FOI and Pure Client. The West Link Project will follow the results of the respective projects and implement those parts that are applicable for the Project. Below, a closer description is given as to which preconditions Major Projects' application of the pure client role gives for the West Link Project procurement strategy.

Pure client

In order to be an even more professional proprietor, the Transport Administration shall move in the direction of becoming more of a pure client. This is an approach in which we move from explaining **how** things are to be done to **what** it is that is to be done. The purpose is greater innovation, productivity and, not least, increased competition to create greater benefit for the money spent.

Major Projects' application of the pure client role

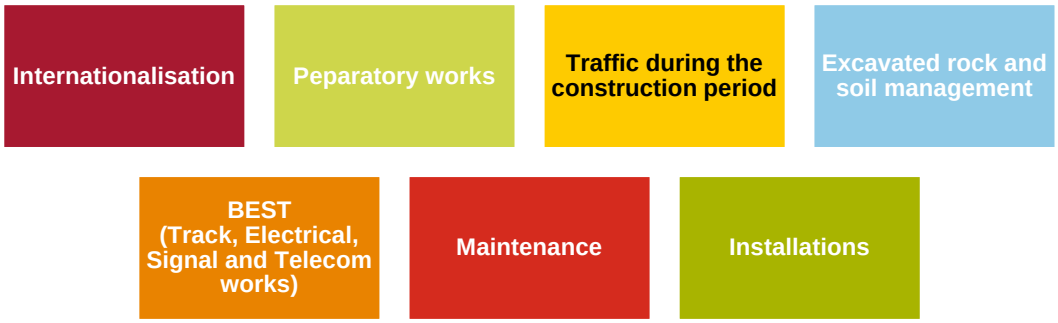
Major Projects' application of the Transport Administration's overall approach as a pure client has been a governing factor in how the Project's procurement strategy has been designed and structured. The application is as follows:

"We value, evaluate and make active choices, and use our business forms in a professional manner. The basis of our operations is contracts and consultancy procurements with incentives and scope for innovation. We benefit from our experience and only where it is most suitable do we motivate forms of contract other than turnkey/design and construct."

Preferable status	We achieve this by
• The productivity and degree of innovation in the construction sector increases by 2-3 per cent per year. • Prior to 2014, Major Projects has freed up over SEK 1 billion through increased productivity. • We check and inspect the right things and do not perform the work of the consultant or the contractor, which means that our suppliers have a well-functioning system of proprietary inspection. • We have good structure and control, and use common systems for project management, surveying and follow-up. • We have low proprietor costs because our suppliers take their responsibility. • The proportion of turnkey contracts is increasing (amounts to 50 per cent in 2018). • The proportion of consultancy procurements with a fixed price is increasing (amounts to 40 per cent in 2018).	• Continue on the adopted course towards becoming a pure client. • Order with clear functional requirements instead of detailed demands. • Have good long-term planning in our purchasing time schedule. • Each project has a procurement strategy in which we analyse and choose the business form, packaging and size that is most cost-effective. • Market our projects both nationally and internationally. • Maintain a continuous dialogue with the sector in order jointly to create a clear picture of what we mean by being a pure client. • Have a good feedback of experience between projects to further develop the client role and benefit from good productivity-increasing examples. • Reward innovation, creativity and life-cycle perspective in tenders and execution. • Value innovations that favour the environment and bring good examples into the limelight. • Plan jointly all major works that have an impact on traffic. • Make sure that our suppliers are made aware of our customer perspective.

Project-specific preconditions

The Project has identified a number of preconditions for the procurement strategy that have a particular impact on the structure of the procurements. These preconditions have also been discussed in the dialogues with contractors. A description is given below of the strategic direction that is advocated for the respective preconditions.



Internationalisation

A project with the size and complexity of the West Link Project has the possibility to attract the global suppliers' market and to learn from their international knowledge and competence, which could be advantageous from both a cost and a technical/qualitative point of view. The strategic direction of the project is to open the market for international contractors and to work for the removal of restrictions in competition. The reasons for this are:

- To gain increased competition

- To gain access to the experience and knowledge of international contractors
- That it is in line with the Swedish Transport Administration's and Major Projects' strategy

This strategic direction means, among other things, that the Project will market internationally, package the contract works as large contracts, allow English to be used as the business language, translate commercial parts of the tender enquiry documents, plan for longer tendering periods and take measures to decrease currency exposure.

> ***We are a foreign operator on the Swedish market and need therefore to overcome our natural competitivity handicap on a given local market.***
>
> *Contractor*

Preparatory works

The West Link Project prescribes, where possible with respect to the adopted railway plan and environmental rulings, for the most part separate contracts for preparatory works. The reasons for this are:

- The Project will save time.
- Unforeseen obstructions or obstacles in the ground, which are common in an urban environment, will have less of an impact on other works.
- Smaller contracts for preparatory works will make it possible for smaller, local contractors with a knowledge of local conditions to win contracts
- Preparatory works are a good way of tuning up and adjusting our own organisation
- The contractors feel that the Project should do as much of the preparatory works as possible.

> ***We believe that it is extremely smart to have preparatory works and to sort out the muddles for both you and us.***
>
> *Contractor*

Traffic during the construction period

The West Link Project prescribes that the contractors should deal with the traffic within their own contract areas. When several contracts are affected, or when the traffic affects a large geographical area, the direction is that the West Link Project should handle the traffic solutions and procure them separately. The reasons for this are:

- The contractors want the Swedish Transport Administration to deal with the traffic solutions since they feel it is difficult for them to coordinate with other contracts, other projects and the city authorities. In Göteborg, a number of major projects will take place during the construction

period, for example Hisings Bridge, European Highway E45 through the city and the Rail Yard Viaduct over the Central Station Area. Coordination between the projects will be extremely difficult in this complex environment.

We can handle the traffic within a limited area, but it is uncertain whether it will fit in with the other contracts and coordination.

Contractor

The traffic impact during the works will extend over a large geographical area and the accessibility questions will affect many residents and business activities.

Preconditions in the urban environment are difficult during the construction period, with a lot of public transport and people moving around, large excavations, Liseberg's 100-year anniversary and Göteborg's 400-year anniversary.

The lead-times for planning are long, above all with regard to public transport. In order to be able to safeguard accessibility, these issues need to be coordinated and planned several years in advance.

Excavated rock and soil management

The strategic direction is that the management of excavated rock and soil should not be included in the construction contracts but that it should be procured as separate contracts. The construction contractor will then have a transport undertaking to move the material to a certain prescribed location. The receipt of material and prescribed locations will be procured separately. The reasons for this are:

- Competition neutrality – the reception of excavated material is a heavily restrictive factor for the market
- Time-consuming handling by authorities
- Optimisation of resources. The Swedish Transport Administration can coordinate with other projects in the area and reduce transportation.

You must try to solve the masses, it is fatal to competition.

Contractor

BEST (Track, Electrical, Signal and Telecom works)

The direction of the project is primarily to procure BEST works as a separate contract throughout the entire project, in which the Olskroken Contract is exempted as a consequence of the special circumstances of the works (see Chapter 7, Olskroken Contract).

The reasons for this are:

- There is a special suppliers' market for BEST works
- Procuring BEST works as a separate contract gives advantages of scale – longer distances generate profitability and industrial thinking
- The majority of the contractors are not interested in BEST contracts even though a certain number could consider taking in BEST suppliers as sub-contractors.

Maintenance

It is proposed that responsibility for maintenance should not be included in the contract agreements. The reasons for this are:

- Experience from earlier projects indicates that we should not share the responsibility for maintenance among too many parties
- The scope of BEST maintenance works is too small to give cost-effective advantages.
- The majority of the construction contractors are not interested in taking on responsibility for maintenance

The BEST contractors, however, are interested in maintenance undertakings for a separate BEST contract. However, preliminarily maintenance will not be included in the BEST contract either. Since the contract will run throughout the entire project it would mean an interface with the facility in general, which could result in a lack of clarity with regard to the liability situation and restrict the benefits of constituent maintenance. The Project is also doubtful about the idea of introducing a maintenance undertaking over as short a distance as 8 km, in the very middle of an ongoing railway maintenance contract in Göteborg.

Our concept is that maintenance should mainly cover the BEST parts. (…) Should the operation and maintenance of these parts be included in our assignment, we would purchase the services from subcontractors. We add no value to the process, but since it will have to be partly administered by us it would incur costs that reduce our efficiency.

Contractor

Installations

Those installations that are of relevance to the West Link Project consist partly of technical systems that run throughout the project, such as electrical power, data communication and tunnel ventilation, and partly of different technical systems that are locally anchored in each contract, such as lighting, telecom systems, fire alarm systems, escalators and lifts.

The strategic direction of the project is that installations will be included in the main contracts to as large an extent as possible. Breaking out the installations into separate contracts could possibly lead to cost benefits for the project. However, since installations are largely included in the main contracts, we feel that this is weighed up in that the risk of disruptions between contracts decreases as well as unnecessary delays and problems in the interface. The majority of the contractors with whom the West Link Project has had dialogues are of the opinion that installations should be included in the main contracts. In order to avoid different contracts developing unique solutions that could lead to problems in connection with future maintenance, the Project probably needs to design the installations to a large extent and specify the prescribed solutions.

> ***Installations should be part of station contracts in order to avoid interferences between different contractors. This will avoid unnecessary delays and interface issues.***
>
> *Contractor*

6. Contract packaging, forms of contract and remuneration

One important part of the West Link procurement strategy is to take advantage of the competition on the market. How the West Link procurements are packaged will have a significant influence on how great the competition can be expected to be, and what type of suppliers can be expected to submit tenders for the procurements. The way of packaging the contracts will also have an impact on the extent to which the Project should be responsible for coordination and how much the coordination can be taken over by the suppliers.

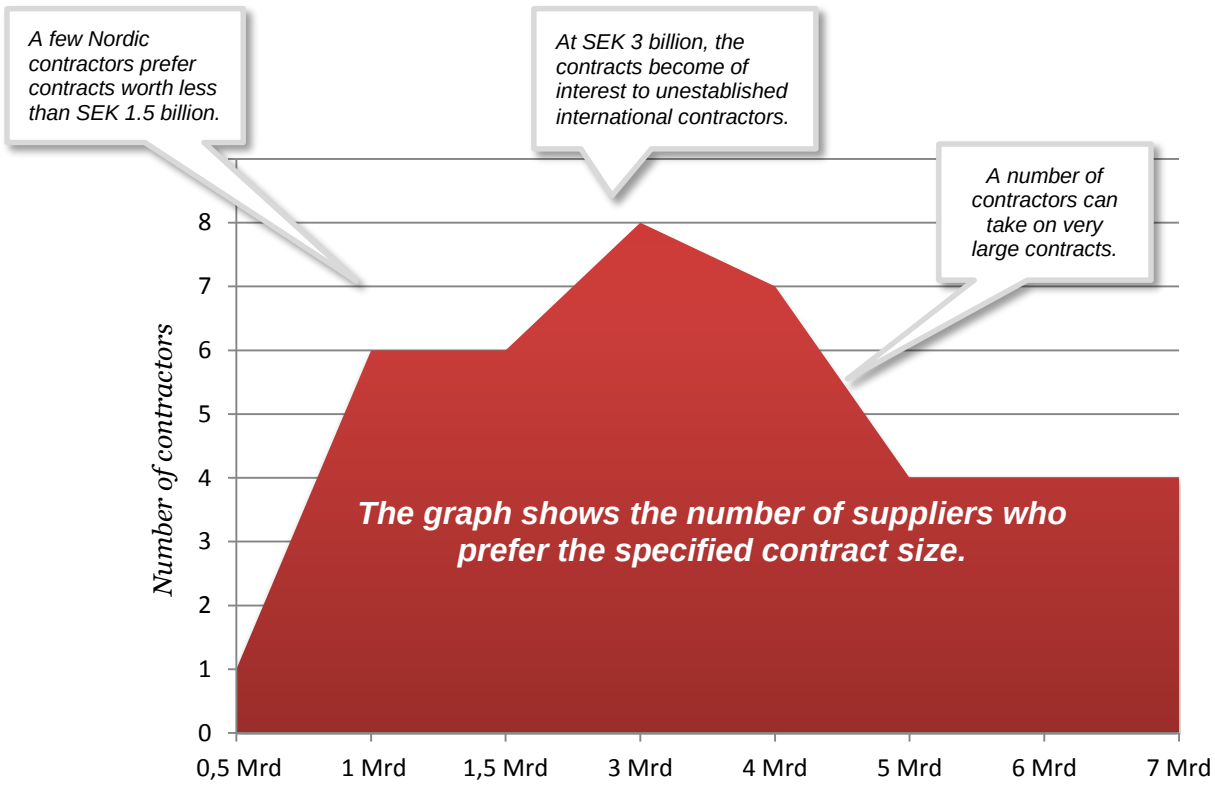
> ***We need contracts of over EUR 300 million in order to be able to implement our knowledge.***
>
> *Contractor*

Contract size

One of the preconditions prior to the procurements is to open the market for foreign contractors in the West Link contracts (see Chapter 5). The Project feels that the West Link type of contracts, with complex building development in an urban environment, could benefit from the experience and knowledge of contractors who are on the global contracting market.

Before developing the procurement strategy, the West Link Project conducted a series of contractor dialogues. One important question that was discussed is the size of the contracts. The opinions of the various contractors differ between on the one hand that the West Link Project should be procured as one contract to, on the other, nine contracts. On average, the contractors advocate a division of the West Link Project into 5-6 contracts. Our conclusions are:

- A suitable size for the contracts has more to do with the turnover per year than the total size of the contracts. In other words, how long the construction period is in relation to the contract volume is decisive.
- The nationally active contractors want contracts under SEK 500 million. The West Link procurements for preparatory works will suit this segment.
- Scandinavian contractors who are big on the domestic market but are not so active internationally, prefer contracts that are worth less than SEK 1.5 billion.
- Contracts in the SEK 3-4 billion range attract major international players who are still not established in Sweden. Foreign contractors require sizable contracts since it is otherwise difficult for them to be competitive with smaller procurements. The specified size is needed in order for it to be worth them coming with their own construction vehicle fleets, own sub-contractors and designers, to move personnel and learn Swedish practice and Swedish regulations.



Preferred contract size in SEK billion.

On the basis of our dialogues and investigations, it is prescribed that West Link Project contracts should be packaged into procurements that attract international contractors. We are aware that these large procurements provide limited opportunities for relatively small companies to submit tenders, but we feel that the West Link Project will also involve these contractors through:

- Preparatory works consisting of smaller contracts which in total are budgeted at approximately SEK 2 billion.
- Partnerships with international contractors. All international players have indicated that they will look for a local partner to acquire and learn about, for example, local knowledge, regulations and language.

Contract packaging

Based on the above conclusions on contract size, it is proposed that the West Link Project be divided into six contracts.

Proposed division into contracts.

The Project proposes four extremely large contracts ranging in size from SEK 3-4 billion, one smaller but complicated contract of approximately SEK 500 million and one railway project covering the entire stretch of line within the area of BEST (Track, Electrical, Signal and Telecom works) worth approximately SEK billion. A successive costing is planned for spring 2014 in order to further calculate the contract size volume in Swedish kronor.

The division into contracts is as follows:

1. Olskroken
2. Central Station
3. Kvarnberget
4. Haga
5. Korsvägen
6. BEST

In the next chapter, an account is given of each contract as well as the forms of remuneration and contract that are prescribed for the different sub-projects. The interfaces between the contracts are described on a general level – exact interfaces will be defined further on in the project after further design work.

Forms of contract

There are two main forms of contract in Sweden: performance contract and turnkey contract. The forms of contract influence the risk and liability sharing between the parties, where the contractor has a greater undertaking and a larger risk exposure for a turnkey contract than for a performance contract. The application by Major Projects of the pure client role indicates that the proportion of turnkey contracts should amount to 50 per cent by the year 2018.

Performance contract

A performance contract is characterized by the fact that the Client is responsible for the design work and thereafter procures a contractor who undertakes to carry out the work that is referred to in the documents. The standard agreement that applies for performance contracts is AB (General Conditions of Contract for Building and Civil Engineering Works and Building Services).

In view of the relatively low level of independence, the Project prescribes the Performance Contract form for the BEST Contract.

As regards rock tunnels, we prescribe that they should be conducted as Performance Contracts. Rock construction is linked with major risks since rock conditions are always difficult to judge and therefore difficult to specify in tender enquiry documents. The Project wishes to avoid a situation in which tenderers compete with an interpretation of geological conditions for, for example, assessing the need for rock reinforcement/stabilisation (compare FIA's ten-point programme for rock construction). At the same time, the span of possible technical solutions is heavily restricted, so we cannot see the efficiency benefits in allowing the same party to be responsible for both design and construction.

> ***When we choose which projects we want to invest in, we make our selection based on whether we can choose methods we want to work with. We want to be able to influence the project ourselves and not simply be handed the design from the Transport Administration.***
>
> *Contractor*

For the main parts of the Haga and Korsvägen Contracts that consist of production tunnels and rock tunnels, Performance contracts are thus prescribed as a consequence of the low level of independence and in order to obtain a suitable degree of risk sharing with consideration to rock quality.

Turnkey contract

A turnkey contract, which is also known as a design and construct contract, is characterised by the fact that the contractor is also responsible for design. The employer has handed over documents to the contractor to serve as basic input in q2hich requirements for the conceived function are presented and are also in practice often supplemented by prescribed technical solutions. The standard agreement that applies for turnkey contracts is ABT (General Conditions of Turnkey Contract for Building and Civil Engineering Works and Building Services).

The contractors with whom the West Link Project has held dialogues are for the most part very positive to turnkey projects.

The Project prescribes turnkey project as the form of contract for nearly all contracts. The Olskroken and Central Station Contracts will be conducted in the turnkey contract form ECI, which is described below. For the Kvarnberget Contract and for the Korsvägen and Haga Contracts, with regard to those main components/stations that consist of concrete and installations, turnkey contracts are also prescribed.

ECI turnkey contract

The fundamental idea behind the ECI (Early Contractor Involvement) turnkey contract is that the contractor becomes involved in the project at an early stage so that the contractor, through his knowledge, can take part in influencing the structure of production methods and costs. It can be said that the turnkey contract, in its most extended form, is an ECI. The most important difference between a traditional turnkey contract and ECI is that the contractor is engaged at a very early stage, when it is possible to have the greatest impact on costs and project outcome. The model is based on cooperation between the parties and the assumption of a "best for the project" attitude from all parties. There is considerable interest from the market in this form of contract.

> ***We believe thet we arte more capable of steering consultants in a production-friendly way than you are***
>
> *Contractor*

Other closely related or similar designations for ECI include alliance contracting, collaboration contract, project partnering and turnkey contract in early cooperation. The Project proposes the ECI project form for the Olskroken and Central Station Contracts. The table below gives an overview of the proposed forms of contract for each contract. Under each contract in the next chapter the choice of contract form is described in more detail.

Summary of forms of contract

Contract	Form of contract
1. Olskroken	Turnkey contract - ECI
2. Central Station	Turnkey contract - ECI
3. Kvarnberget	Turnkey contract
4. Haga	Turnkey contract – performance contract for rock sections
5. Korsvägen	Turnkey contract – performance contract for rock sections
6. BEST	Performance contract

Forms of payment for the contracts

According to Byggandets kontraktskommitté, BKK (Construction Contracts Committee) there are three forms of payment: fixed price/lump sum, current account and quantity contract.

Fixed price

Fixed price means that the contractor receives payment in a previously agreed amount with or without indexation. The preconditions for being able to request

a fixed price depend primarily on the employer's ability to provide sufficient and clear information on the scope of works and the nature of the site.

The Project proposes a fixed price for the BEST Contract and in all probability for the Kvarnberget Contract. This will be defined more closely after continued design.

Current account

Current account in accordance with the cost price principle means that the contractor will be reimbursed for his costs on the basis of a percentage mark-up. The basic form means that the contractor reports his cost prices and receives reimbursement for them. The advantages of current account is *the time* – the employer does not need to specify the extent of the work in detail, – *the flexibility* and that there are no driving forces to cut back on *the quality*. The disadvantages are obvious: the uncertainty is greater with regard to the employer's costs and the incentive for efficiency is lower. The contractor's profit lies in the employer's fee in the form of a percentage mark-up on other costs.

In order to create an economic incentive to limit the costs, it is possible to use current account with *a fixed contractor's fee*, or alternatively combine current account for certain cost centres with *fixed sub-amount*. Another solution is a so-called *target price contract*, or in other words current account in which agreement is reached on a target price – an estimate of the final cost and a mechanism for adjusting the target prices for, for example, ÄTA (Alterations, Additions and Deleted Works). If the costs fall below or exceed the target prices, the parties hare the difference, sometimes differently depending on whether the amount is above or below the target price.

The Project proposes current account in accordance with the cost price principle with a target-based agreement for the Olskroken and Central Station Contracts. Fixed sub-amounts should be used wherever possible. If we cannot specify the preconditions for the Haga and Korsvägen Contracts to a sufficient extent, current account in accordance with the cost price principle with a target price agreement will also be used for these contracts, in those parts of the works that do not consist of rock tunnel construction. This will be defined in more detail after continued design.

Quantity contract

A quantity contract means that the agreement contains a schedule or bill of quantities with quantities that have been estimated by the employer that are presented in a schedule of quantities that is provided by the employer. The quantities are multiplied by the unit prices/unit rates and the sum total gives a tender price. Once the work has been carried out, the payment is recalculated on the basis of actual quantities and agreed unit prices. The advantage of a quantity contract is on the one hand that it is a simple adjustment model and on the other that prices are subject to competition even if the employer does not know the magnitude of the quantities. This is an advantage when, for example, the nature of the geology means that the quantities are uncertain. The disadvantage of a quantity contract is that the size of the contract price is difficult to predict.

In view of the relatively low freedom of choice for rock works and in order to obtain a suitable risk sharing with regard to rock quality, the Project prescribes

the form of payment referred to as quantity contract with schedule of quantities for those parts of the Haga and Korsvägen Contracts that consist of rock tunnels including production/access tunnels. The remuneration model for grouting works is regarded as strategically important for the success of the project and will therefore be given special consideration during preparation of the tender enquiry documents.

Summary of forms of contract payment

Contract	Form of payment
1. Olskroken	Phase 1: Contractor's fee, Phase 2: Current account with target price and incentive.
2. Central Station	Phase 1: Contractor's fee, Phase 2: Current account with target price and bonus.
3. Kvarnberget	Fixed price
4. Haga	Quantity contract for rock works and fixed price/ current account with bonus agreement for other works
5. Korsvägen	Quantity contract for rock works and fixed price/ current account with bonus agreement for other works
6. BEST	Fixed price

7. Olskroken Contract

The Olskroken Contract consists in overall terms of the stretch of line from Olskroken to and including the bridge over the E6. The interfaces between Olskroken and adjacent contracts will be defined in more detail after further design work.

Olskroken is a central node in the rail system in Göteborg and Western Sweden. Five lines converge at this point, most of them on the same level. The traffic consists of both passenger and goods services. In view of the construction of the West Link and the high degree of capacity utilisation, Olskroken needs to be converted into a grade separate junction. The conversion comprises approximately 7 km of new and reconstructed tracks, a large number of points and a total of 15 bridges. To this must be added extensive temporary works.

The contract requires a very high level of competence with respect to logistics and rail traffic control. Since the constructioon of this stretch of line falls within a railway area with operational traffic, the BEST works should be included in the main contract.

Time schedule

The total implementation period for the contract is approximately six years. The contract works are planned to be started in 2018 and be completed in 2023/2024. Contractor procurement will start in 2015.

Form of contract and form of payment

Olskroken consists of a large number of bridges, which provide the chance for standardised, industrial construction. Bridges are normally procured as turnkey contracts since design and production are interconnected. In the case of Olskroken, ECI (Early Contractor Involvement) turnkey contract is prescribed. This form of contract means that the contractor is involved in the project at such an early stage of the project that the contractor can be involved in influencing the design through his knowledge of production measures and costs. Choice of production method goes hand in hand with design for the contract works with numerous traffic diversions on the railways.

Since the preconditions and requirements for traffic rerouting are difficult to describe, and at the same time have a significant impact on the execution of the contract, it is proposed that the contractor be paid on the basis of actual costs incurred with a financial incentive to conduct the project efficiently and to limit the costs, or in other words on current account in accordance with the cost price principle with a target cost and incentive/bonus.

With ECI, the project is divided into phases. The first phase incorporates detailed design, the calculation of a target price, a production time schedule, risk management, etc. The second phase comprises the physical construction works on the site. The prescribed form of payment for Phase 1 is contractor's fee and for Phase 2 current account in accordance with the cost price principle with target price and incentive/bonus.

8. Central Station Contract

The Central Station Contract consists in overall terms of the stretch of line from the bridge west of European Highway E6, through Gullberget beneath Skansen Lejonet and up to and including the new Central Station at Lilla Bommen. The Project wants to create additional capacity earlier through the completion of these parts as early as in 2023/2024. The interfaces between the Central Station Contract and adjacent contracts will be defined in more detail after further design work

The contract incorporates the entire station with similar types of work. Both the station and the tunnel are made of concrete and are built in open excavations in temporary supporting structures. The station area will remain integrated, which will allow installations during the contract works and that traffic rerouting in the area Göteborg Central Station to be taken care of by a contractor.

The geological conditions on the stretch of line between Gullberget and Lilla Bommen consist of clay down to a depth of 100 m. The most difficult aspect of the contract is the substantial excavation depth in combination with the wide section. The area is a connection point for public transport, but there is also a considerable amount of car traffic in the area. A substantial number of geotechnical surveys will be required, which requires knowledge of local conditions. The extension of Central Station must be performed in stages, partly in view of the geotechnical preconditions and partly because of the traffic in the area.

Time schedule

The total implementation time for the contract is approximately six years. The contract works are planned to commence in 2018 and be completed at the end of 2023, beginning of 2024. Contractor procurement will start in 2015.

Form of contract and form of payment

The Central Station Contract consists of concrete structures that are normally procured as turnkey contracts as a consequence of the impact that the production methods and technical solutions have on the design work. In the case of Central Station, the ECI (Early Contractor Involvement) form of turnkey contract is prescribed. This form of contract means that the contractor is involved in the project at such an early stage of the project that the contractor can be involved in influencing the design through his knowledge of production measures and costs. Central Station is a complicated contract with many complex peripheral conditions. The contract form could lead to new production methods.

Since the preconditions and requirements for technical solutions are difficult to describe and at the same time have a significant impact of the performance of the contract, it is propose that the contractor be remunerated on the basis of actual costs incurred with a financial incentive to conduct the project efficiently and to limit the costs, or in other words on current account in accordance with the cost price principle with a target cost and incentive/bonus.

With ECI, the project is divided into phases. The first phase incorporates detailed design, the calculation of a target price, a production time schedule, risk management, etc. The second phase comprises the physical construction works on the site. The prescribed form of payment for Phase 1 is contractor's fee and for Phase 2 current account in accordance with the cost price principle with target price and incentive/bonus.

9. Kvarnberget Contract

The Kvarnberget Contract is situated between Lilla Bommen in the north and Residenset on Södra Hamngatan in the south. The interfaces between Kvarnberget and adjacent contracts will be more closely defined after further design.

The contract is smaller than other contracts but consists largely of the same kind of work in several different passages. The contract is suitable in size for a somewhat smaller contractor with a good knowledge of local conditions.

The contract consists for the most part of a concrete tunnel in cut and cover. The tunnel also cuts with single-sided rock cutting through Kvarnberget and runs with a crossing beneath Stora Hamnkanalen and into the rock south of Södra Hamngatan. Geotechnical investigations will be needed. After the rock excavation in Kvarnberget, the nature of the work changes to excavation in soil as far as Södra Hamngatan. Hamnkanalen (Harbour Canal) shall be kept open to safeguard water through flow and boat traffic. The crossing of Göta Tunnel entails reinforcement works and tunnel closure as a consequence. Existing streets will need to be used, which means that extensive traffic rerouting will be required. The stretch of line passes through an area that is of national interest for the cultural environment and will pass historical remains in the form of ancient fortifications.

Time schedule

The total implementation time for the contract is approximately five years. The contracts are planned to be started in 2018 and finished in 2023. Contractor procurement will start in 2020.

Form of contract and form of procurement

The Kvarnberget Contract consists almost entirely of concrete structures. The Project prescribes that the contract be performed as a turnkey contract, above all in view of the impact that the production methods and technical solutions will have on the design work. The contract offers a large degree of freedom and it is possible to coordinate permanent and temporary structures. It should to a reasonable extent be possible for the contract to be described – with respect to preconditions and requirements for its implementation – in tender enquiry documents and to be remunerated most suitably with a fixed price in order to generate necessary driving forces to come up with the best technical solution and the best production methods to fulfil the preconditions and requirements in question.

10. Haga Contract

The contract is dominated by Haga Station, which is entirely located within the contract area. This makes it possible for non-structural works and installations to be included in the same contract. The contract is priced at approximately SEK 3-4 billion and is thus of a suitable size from an international contractor's point of view. If the Haga and Korsvägen Contracts were to be combined it would create an extremely large contract with combinatory procurement.

The Haga Contract starts in the northern part of the rock through Otterhällan. The tunnel then continues with a concrete tunnel beneath Rosenlund Canal and moves into rock approximately a third of the way into Haga Station. After Haga Station the contract continues as a rock tunnel in the direction of the Korsvägen Contract. Interfaces between the Haga Contract and adjacent contracts will be defined in more detail after further design work and should be located in a suitable spot from the point of view of access/production tunnels.

The rail tunnel will also have an associated parallel service tunnel and a connecting production tunnel. A number of buildings that are of cultural historical value are situated along the stretch of line in question. The passage at Haga Church and the old City Library is judged to be the most problematic and here there is a risk of disruptions in conjunction, for example, with blasting operations. Between Skattehuset and Haga Park, the ground consists of a clay-filled valley that is over 35 m deep beneath Rosenlund Canal. The difficulties here are therefore the wide sections and the substantial distance to rock at the crossing of Rosenlund Canal. The crossing beneath the Tax Authority's property (Skattehuset) in Rosenlund will require extensive load transfer since the West Link passes through existing piled foundations for buildings. A considerable number of geotechnical investigations will need to be conducted.

Time schedule

The total implementation period for the contract is approximately six years. The Contract is planned to commence in 2018 and to be completed in 2024. Contractor procurement will start in 2016.

Option at interface

The interface between the Haga and Korsvägen contracts may include an option. The option will be written into the contracts for both the projects, and is

conceived to serve as an incentive and driving force for the contractors and to be triggered unilaterally by the employer.

Form of contract and form of payment

In structural engineering terms, the contract incorporates two separate structures: a rock tunnel and a concrete tunnel. The Project prescribes that the concrete tunnel parts be procured in the form of turnkey contracts above all as a consequence of the impact that the production methods and technical solutions will have on the design work. As far as the rock tunnel parts are concerned, it is prescribed that they be procured as performance contracts in view of the sharing of risks in connection with rock conditions that are difficult to assess and the restricted freedom of choice in connection with technical solutions.

The Project prescribes, therefore, that the contract be divided into main parts in which most of the rock works are procured as a performance contract (AB04) and most of the soil/concrete works, including non-structural works and installations, as a turnkey contract (ABT06). The Project will study this in further detail in cooperation with the Legal Section.

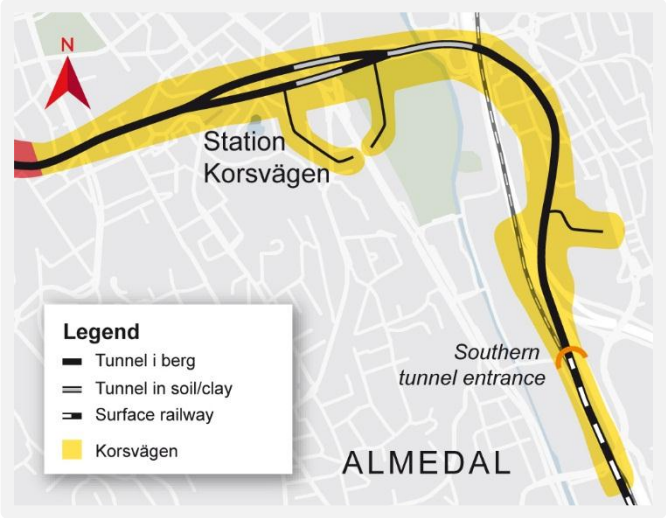
The form of payment is also different in the main parts of the contract. For the majority of the rock works, a quantity contract is prescribed with quantity adjustment against a priced schedule of quantities.

The form of payment for main parts with a functional responsibility, i.e. concrete/station/installations, depends on how well the Project succeeds in describing the preconditions and requirements on the tender enquiry documents. If preconditions and requirements can be described to a reasonable extent, fixed price procurement is described in order to generate driving forces for finding the best technical solution and the best production methods. In the event that preconditions and requirements for technical solutions are too difficult to describe, the contractor will be remunerated on current account in accordance with the cost price principle with a target price and incentive/bonus. Fixed sub-amounts should be used wherever possible. No decision will be made until after continued design work.

The Project proposes that alternative tenders be allowed for the contract. The reason for allowing tenders to be submitted with alternative executions is to make it possible to receive proposals for alternative production methods. TBM, for example, could be an alternative production method to Drill and Blast.

The Project considers that the Haga and Korsvägen Contracts are suitable for combinatory procurement. If the two contracts are combined there could be benefits of scale to be gained as well as the possibility for alternative production methods for, for instance, rock works.

11. Korsvägen Contract



The Korsvägen Contract starts with a rock tunnel as far as Korsvägen Station and ends in Almedal. Korsvägen Station will be entirely located within the contract. This makes it possible for non-structural works and installations to be included in the same contract. The contract is priced at approximately SEK 3-4 billion and is thus of a suitable size from an international contractor's point of view. If the Haga and Korsvägen Contracts were to be combined it would create an extremely large contract with combinatory procurement.

Interfaces between the Korsvägen Contract and adjacent contracts will be defined in greater detail after further design work.

The Korsvägen contract changes from rock to soil. The contract starts in the west in a rock tunnel which passes into the station area. After this, work in the station area changes to soil excavation at Korsvägen before the tunnel passes Liseberget in excavated rock. Through the Liseberg area the tunnel is built in excavated soil and then the tunnel passes beneath the E6 where a rock tunnel takes over. After another crossing beneath the E6, the tunnel passes into a concrete trough, with rerouting of the existing railway and a bridge over the E6 for connection to the Coast-to-Coast Line.

The entire Korsvägen Station area is accommodated in the contract. Half the station is located in rock and half in excavated soil. Groundwater issues relating to Korsvägen and the Mölndal river valley will be managed as part of this contract. The Korsvägen connection point already has a difficult traffic situation, and the traffic will need to be rerouted in different stages of construction. One decisive issue is whether or not the City of Göteborg intends to build a planned road tunnel above the West Link tunnel. The traffic solution for Korsvägen and the traffic control of rail services and road traffic are included in the contract. In order to facilitate the rescue concept, the service of railway infrastructure and the station and to contribute towards rational production, three rescue, service and production tunnels will be constructed in the contract.

Time schedule

The total implementation time for the contract is approximately seven years. The contracts are planned to commence in 2018 and to be completed in 2024. Contractor procurement will start in 2016.

Form of contract and form of payment

In structural engineering terms, the contract incorporates two separate structures: a rock tunnel and a concrete tunnel. The Project prescribes that the concrete tunnel parts be procured in the form of turnkey contracts above all as a consequence of the impact that the production methods and technical solutions will have on the design work. As far as the rock tunnel parts are concerned, it is prescribed that they be procured as performance contracts in view of the sharing of risks in connection with rock conditions that are difficult to assess and the restricted freedom of choice in connection with technical solutions.

The Project prescribes, therefore, that the contract be divided into main parts in which most of the rock works are procured as a performance contract (AB04) and most of the soil/concrete works, including non-structural works and installations, as a turnkey contract (ABT06). The Project will study this in further detail in cooperation with the Legal Section.

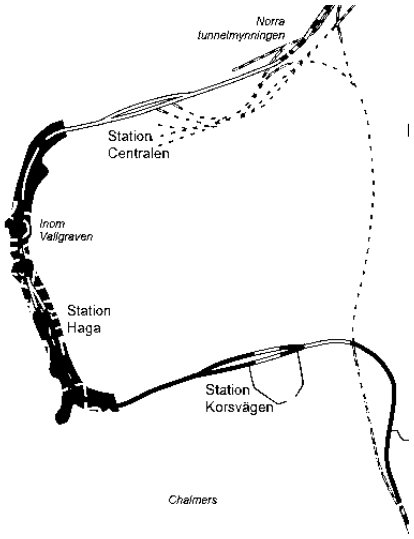
The form of payment is also different in the main parts of the contract. For the majority of the rock works, a quantity contract is prescribed with quantity adjustment against a priced schedule of quantities.

The form of payment for main parts with a functional responsibility, i.e. concrete/station/installations, depends on how well the Project succeeds in describing the preconditions and requirements on the tender enquiry documents. If preconditions and requirements can be described to a reasonable extent, fixed price procurement is described in order to generate driving forces for finding the best technical solution and the best production methods. In the event that preconditions and requirements for technical solutions are too difficult to describe, the contractor will be remunerated on current account in accordance with the cost price principle with a target price and incentive/bonus. Fixed sub-amounts should be used wherever possible. No decision will be made until after continued design work.

The Project proposes that alternative tenders be allowed for the contract. The reason for allowing tenders to be submitted with alternative executions is to make it possible to receive proposals for alternative production methods. TBM, for example, could be an alternative production method to Drill and Blast.

The Project considers that the Haga and Korsvägen Contracts are suitable for combinatory procurement. If the two contracts are combined there could be benefits of scale to be gained as well as the possibility for alternative production methods for, for instance, rock works.

12. BEST Contract



The BEST contract consists of works that are conducted throughout the entire project that are technology-dependent and substantially adjusted by regulations and requirements. Included in the BEST works are the fields of technology track electrical, signal and telecom works. In order to achieve benefits of scale, the contract is long and in all approximately 8 km in length along the West Link alignment.

The track will probably be built as a ballast-free track, or in other words instead of attaching the rails to sleepers, which are them laid in macadam, the ballast-free track will be built on the basis of a concrete slab. The purpose of this is to decrease the excavation depth and reduce the maintenance costs. This structure is common in connection with track construction in tunnels in Europe. The contract will be executed in the form of a concluding part of the project. The tunnel will be prepared for the signal system ERTMS (European Rail Traffic Management System). In order to be able to carry out the BEST works, resources are needed in the form of machinery, manpower and material, which are to a large degree dependent on logistics and limited. The machinery used is in demand and booked up a long time in advance by the suppliers. BEST works for the Olskroken Contract will not, however, be included in the contract since these works are included in this contract.

Time schedule

The BEST works are divided into two main parts or alternatively two contracts with different completion times because the idea is that Central Station should be linked in to prodvide additional capacity already at he end of 2023, beginning of 2024. After this, the remaining part if the work is started and completion is planned to be in 2026. The total implementation time for the contract is approximately one plus two years. Contractor procurement will start in 2020.

Form of contract and form of payment

For the BEST contract, a performance contract is prescribed because the project offers very little freedom of choice, few design opportunities, requires extensive planning in advance with material supplies and material to be provided by the employer as well as the fact that the market considers the performance contract to be the most suitable form of contract for BEST works . Fixed price is prescribed as the most suitable form of payment since we are able to specify the scope of works to a sufficient extent.

It would be strange if you wanted us to take total responsibility in a turnkey contract but then you supply the materials

Contractor

13. Preparatory works and services

Procurements of tender enquiry documents/design

The Project will commence with the procurements of further design work and the production of tender enquiry documents for the contracts during 2014. The procurements will be based on ABK 09 (General Conditions of Contract for Consulting Assignments in Architecture and Engineering.

The application by Major Projects of the pure client role means that the employer specifies that the proportion of consultant procurements at a fixed price should amount to 40 per cent in the year 2018. At present, it is difficult for the Project to see how the procurements can be based on fixed price owing to the level of uncertainty in the extent of the design work. However, fixed price could perhaps be applied for parts of the design work through a combination of variable fee with a fixed sub-amount for those parts of the design that it is possible to specify to a necessary extent.

Assessment will be made of both price and quality with the award criterion "economically most advantageous tender". The calculated value for the procurements amounts to approximately SEK 200 million including design for preparatory works. Procurement will take place in 2014.

Preparatory works

The rerouting of utility lines, relocation of facilities, temporary works, archaeological excavations and other works that could cause disruptions and have time impacts on the contract works will be performed in preparatory contracts to the greatest extent possible with a view to adopted railway plans and environmental rulings. It will not be possible for the production/access tunnels to be part of the preparatory works because a railway plan and environmental rulings are required for these works. The production/access tunnels will therefore be included in the main contracts.

It is prescribed that a considerable proportion of the preparatory works should be conducted as performance contracts in accordance with AB04. The procurements of preparatory works will commence in 2015. The calculated value of the procurements is in the region of SEK 1-2 billion.

Management and receiving of surplus rock and soil material

In the West Link Project, the surplus quantities of both soil and rock materials is substantial and the market for receiving soil material in the region is limited. The Project, which is situated in the central parts of Göteborg, also has very limited potential for the intermediate storage of such material. The total volume of excavated material in the case of soil, and in particular fill and loosely-compacted clay, is estimated to be in the region of 1 700 000 m^3. Of this, less than 300 000 m^3 is deemed possible to be reused provided that intermediate storage can be arranged. The rock volume is estimated to be approximately 1 100 000 m3. Included in this volume is 100 000 m^3 of rock from production/access tunnels. All volumes are quoted in theoretically solid cubic meters.

The Project is currently working on a surplus rock and soil management plan. In the first instance, the production of surplus soil and rock is prevented, in the

second place the material is reused without treatment, in the third place the material is recycled and in the final instance the material ids disposed of. The following alternatives are at present being studied:

- Agreement with interested parties on the supply of soil and rock material for, for example, backfilling and the embankment of future areas in harbours, to fill abandoned rock quarries, for the covering of disposal sites, etc.
- The sale of tunnel rock possibly combined with a repurchase clause for crushed material.
- Separate procurements of recovered soil and contaminated material.

The procurement/sale is expected to commence in 2015.

14. Form of procurement

Procurement procedure

The project is subject to the provisions of the Act on Procurement within the Areas of Water, Energy, Transportation and Postal Services (LUF). The provisions in LUF are somewhat more flexible than in the Swedish Public Procurement Act, LOU. Procuring units, for example, are allowed to choose between the procurement procedures open, selective or negotiated, which means that the negotiated procedure is always available. In addition, there are higher threshold values in LUF than in LOU in the procurement of goods and services. The majority of the West Link Project procurements will be conducted on the basis of negotiated procurement.

Prequalification

Prequalification according to LUF means that the Swedish Transport Administration chooses suppliers on the basis of predefined criteria/requirements. This normally takes place through the Transport Administration's prequalification system TransQ. The number of tender applicants that the Project intends to invite must me large enough to achieve effective competition (according to LOU, at least three). The Project is of the opinion that from three to four tenders will be quite sufficient to create competition.

> ***We would very much like to see a prequalification round in order to largely remove the possibility to appeal.***
>
> *Contractor*

In view of the fact that costing large and complex contracts is a time- and cost-consuming procedure, those suppliers with whom the Project has conducted dialogues are very positive to the concept of prequalification, since it means that suppliers who have qualified know that they are of interest to the Project and can devote more time and energy to their tenders. Prequalification also gives a shorter tendering phase and it is easier for us to

evaluate the tenders since we have already sorted away companies that do not have the necessary capacity and quality.

The Project is at present studying different models for prequalification, both internally within the Swedish Transport Administration and externally and internationally.

The Central Station, Haga and Korsvägen contracts are in terms of value among the largest contracts that the Transport Administration has ever conducted. This places demands on the contractors with respect not only to technical competence and personnel resources but also to financial status. The Project is also in the process of studying models for how the contractors' financial positions should be considered in order, as far as possible, to be certain that the contractor can survive the contract and guarantee periods even if the contractor were to conduct the project at a loss.

Evaluation

The choice of qualification requirements and evaluation models will be made with adaptation to the respective procurement. In view of the complexity of the West Link Project procurements, the award criterion "most economically advantageous tender" with a high value attributed to quality will apply for most of the procurements with assessment of both price and quality. However, in the case of procurements with a very extensive prequalification, the award criterion lowest price is proposed.

Negotiated procurement

Negotiated procurement means there are possibilities for negotiation if the Project so requires. Negotiations are held with tenderers to adapt tenders to meet the requirements for the contract object that have been specified in the advertisement and in the tender enquiry documents, and in order to produce the best tender that meets the specified award criteria. The approach can be structured in the form of a dialogue that is subjected to competition. The negotiations can also be conducted in successive stages in order to gradually reduce the number of tenders. In those cases where the procuring authority intends to use this approach, it shall be specified in the advertisement or in the tender enq2uiry documents. The successive selection is based on the award criteria that have been specified in the tender enquiry documents.

The Project prescribes that the degree of negotiation be adapted on the basis of the preconditions of the contract in question and is probably used in a procedure similar to a dialogue subjected to competition for very complex turnkey contracts. In the case of a performance contract with very little freedom of choice, for example a BEST contract, the degree of negotiation will be considerably lower. The West Link Project is currently studying various models of negotiated procedure and dialogue subjected to competition, both internally within the Swedish Transport administration as well as externally – both nationally and internationally.

Evaluation ECI (Early Contractor Involvement)

The award criterion for ECI is "economically most advantageous tender". Since the contractor is procured at such an early stage of the project, the evaluation focuses on assessing the tenderer's ability to execute the project – in the most efficient and effective way – in accordance with the established intentions through, for example, proposals for technical solutions, an implementation plan, organisation, work injury statistics and the ability to cooperate. It is difficult to value price – competing with the lowest contractor fee does not lead to the lowest final cost for the project. The Project proposes that the Swedish Transport Administration itself should set a reasonable contractor's fee as a percentage, or alternatively that the fee be afforded a limited impact on the tender evaluation, and that a lowest level for contractor fee be specified, which represents a reasonable level to cover overheads and generate a reasonable profit.

Alternative tender

As synonyms for the term alternative tender, use is made of the term "tender with alternative execution" and "other tender". The purpose of allowing tenders with alternative executions is to make the procurement nm ore innovation-friendly in that it could be difficult to predict every conceivable solution that is available on the market. The disadvantage of alternative tenders is a somewhat more complicated procedure in connection with their evaluation, which could lead to a greater risk of appeal. The decision on allowing alternative tenders must therefore be placed in relation to the value of the alternative tender for the contract. If alternative tenders are to be allowed, it shall be specified in the tender enquiry documents (for LOU in the advertisement). The minimum requirements for an alternative execution and special terms and conditions for how the alternative execution shall be presented must be specified in the tender enquiry documents. In order to be able to approve an alternative execution, the basis for award "economically most advantageous tender" must be adopted. The Project proposes that alternative tenders should be allowed for the Haga and Korsvägen Contracts.

Combinatory procurement

A combinatory procurement means that a tenderer in a procurement can submit a tender fort both one individual contract (single tender) as well as for combinations of contracts (combination tender) and in addition offer a discount if awarded several contracts or submit a restriction (tender supplement) on the number of contracts the tenderer is willing to take on.

Combinatory procurement could be suitable where cost advantages can be expected to be scale dependent. In the Project we have pointed out the Haga and Korsvägen Contracts as being suitable on the basis of combinatory procurement. The Contract works consist of tunnels in primarily rock with one station in each contract. If the contracts are combinatory, the prolonged rock works can provide the opportunity for alternative production methods such as TBM or other advantages of scale.

Incentive/bonus

The Project intends to identify and implement incentives in the contracts with the aim of facilitating fulfilment of the established goals with respect to time, cost and quality, with a clear focus on benefit to society. With this strategy, good opportunities are afforded – regardless of the form of contract – to use the contractor's creativity and competence in order to make improvements.

Innovation and new production methods

The application by Major Projects of the pure employer role means that we shall reward innovation, creativity and the life cycle perspective in tenders and execution. Innovation in the project could be new production methods or technical solutions. It could also be new ways of planning or organising, new methods of conducting dialogues with our surroundings, and new ways of making use of old, given assumptions.

It is therefore important to design the procurement processes for the particular contract in question so that they pave the way for new solutions, and to create contracts that provide driving forces for innovative solutions with incentives that reward a strong innovation environment that favour both contractor and employer and with a clear focus on their benefit to society.

Language used in tender enquiry documents

As a basic starting point, tender enquiry documents and contract documents will be formulated in the Swedish language. The Project prescribes that some of the tender enquiry documents – the Contract Agreement, the Administrative Requirements and the Scope of Works – should be translated into English. The reason for translating the tender enquiry documents is to provide tenderers with the possibility to quickly gain an insight into the contract and to receive approval from the respective corporate managements to proceed with the tendering activities.

Security protection

The West Link Project impacts on a number of objects within the corridor that are protected for security reasons. For planning, investigation and inspection in conjunction with construction of the West Link, access is required to technical installations in utility line areas or rock tunnels as well as to geographical information that is or could become secret or subject to secrecy.

The security protection requirements in accordance with the Secrecy Act apply also in the case of procurements. For the West Link Project procurements, this means that before any secret information is allowed to be given to a tenderer or supplier, a security protection agreement shall have been entered into. Furthermore, those parties who are affected by the project shall have been granted authorisation from the security protection point of view. Security protection agreements shall be entered into with both main suppliers as well as any sub-suppliers. The signing of a security protection agreement may not be delegated to the main supplier. As far as the disclosure of information that is subject to secrecy is concerned, a written secrecy agreement is required.

Cooperation

As far as the majority of the contractors the Project has held dialogues with are concerned, cooperation is regarded as being very important for the success of the project. Cooperation is not dependent on forms of contract or payment, but can be applied on all contracts that the West Link Project has proposed. The Project prescribes good cooperation that is based on:

- trust, respect, transparency and availability,
- joint problem solving.
- cooperation at an early stage to guarantee possibilities for savings in terms of both time and costs,
- a clear and efficient/effective way of managing risks so that the project does not suffer disturbances.

Extended cooperation in accordance with the FIA model, Levels 1 and 2, will be used on the contracts. Extended cooperation in accordance with the FIA model describes – in addition to the approach – a common system of risk and conflict management between the parties to the contract.

- Level 1 comprises the basis for a business-oriented approach and is required in all Swedish Transport Administration projects. It supports a build-up of trust and work motivation and at the same time avoids conflicts.
- Level 2 is selectable and adds additional parts that are in the first place intended for more complicated and/or major contracts and design projects.

> ***Cooperation between individuals is the key to a successful project***
>
> *Contractor*

15. Work environment and safety

Major Projects define the work environment as being one of the Transport Administration's most important challenges. The strategy below has its origins in Major Project's strategy document from 2013 applied on the West Link Project.

The basic starting point for the West Link Project is to be at the cutting edge for a good working environment, to have a good security culture and active work environment activities. The West Link is working to create preconditions and driving forces so that all participating parties promote the work environment. The project goals with regard to work environment and safety are that:

- No serious work environment accidents occur.
- There is a well-developed safety culture.

This is achieved by:

- Creating preconditions as early as during the procurement for favourable work environment conditions.
- Not abdicating from our work environment responsibility, regardless of the form of contract in question.
- Creating a common approach and a pro-active way of working together with our contractors.
- Learn from the experience of others (for example other major projects)
- Work actively with risk management and develop a common approach
- Consider the work environment at all stages of the project.
- Take strong measures if the work environment regulations are not being fulfilled.

Some of the challenges that will face the West Link Project will be coordination and the responsibility for coordination in connection with work environment and safety. The Project will engage the services of a large number of people over a long period of time and in a complex urban environment. Coordination with contractors, other players and third parties is extremely important in order to make sure that safety is achieved. The difficulty in this context will be in reaching out to all those involved in connection with work environment and safety aspects, especially in view of the fact that the Project will probably also employ foreign contractors where cultures, attitudes and approaches differ. One important question in connection with the procurements will be to make sure that the project acquires the right competence needed for handling these important aspects.

16. Environment

The strategies for the West Link Project within the environmental area are:

- To lead a development in which the negative impact of the transport system on the environment and health decrease, at the same time as the preconditions for travel and transportation are improved.
- In cooperation with partners and other players, to lead the development of an environmentally sustainable transport system by planning, building and administering the transport system in an environmentally adapted way and by integrating environmental consideration into the daily work on the project.
- To communicate how our decisions will affect the environment and the considerations that are made.
- To observe and follow directives and other requirements, and to learn from our experience to make steady improvements.
- To work for the achievement of environmental goals within the areas of climate, health and landscape.

This will be done by taking measures to develop an energy-efficient transport system with a limited impact on the climate, a decrease in atmospheric pollution and noise, and the reduced use of hazardous substances as well as by retaining and strengthening natural and cultural values. One important aspect in

connection with the procurements will be to ensure that the Project acquires the right competence to deal with these important aspects.

17. BIM in the West Link Project

The West Link Project will use BIM (Building Information Modelling) as a central working process for controlling the information management in the project. BIM as the term is defined[1] as ”a database containing information on the project, for example in the form of three-dimensional geometry and properties such as material, quality, cost and production method.” BIM is also defined as the process in which the data models are created and administered.

Some of the objectives that can be mentioned in connection with BIM are:

- That the project members will gain a better and more up-to-date impression of the project in its entirety with the aid of 3D-models that are used actively to create efficient and effective meetings and more reliable joint reviews.
- BIM shall provide more accurate quantities for costing and project planning
- BIM shall give 3D-models with a high degree of quality that increase the efficiency of production
- BIM shall result in fewer drawings in the tender enquiry documents

The basic starting point for the BIM work in the West Link Project is to as far as possible use established techniques, methods, processes and organisation,. As well as established principles for classification. The principle for the application of BIM is based as far as possible on the common sector recommendations and will be formulated with greater precision in the West Link Project document manuals.

18. Overall procurement time schedule

Project time schedule

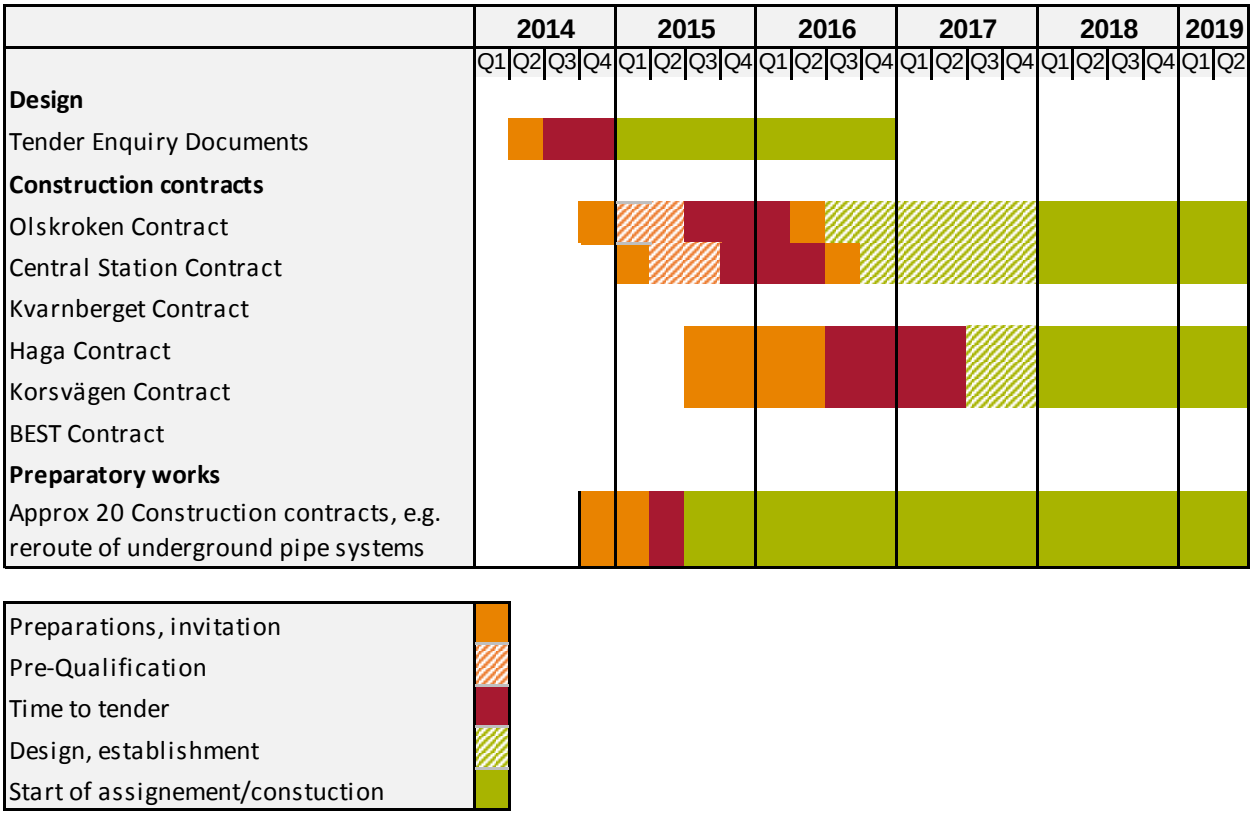
The government has not yet announced the permissibility of the project. In order to be able to execute the project, a legally valid railway plan and environmental impact assessment, a legally valid environmental ruling and local authority detailed development plans are also needed. The project implementation is based on the assumption that construction of the West Link can start as soon as all necessary permits have been granted. The permit processes are being handled by the Land and Environment Court and the unit for plan review at the Swedish Transport Administration. Based on these circumstances, construction is planned to commence in 2018. The construction period is calculated to be approximately 8 years.

[1] As per Construction Documents 90 Part 7

Procurement time schedule

The time schedule is based on the assumption that the contracts will be signed once all the requisite permits for the performance of the contract works have been granted. In order to allow start of construction in 2018 however, it is necessary for the Invitation to Tender for the contracts to be sent out prior to legally binding railway plan and environmental ruling, but with a reservation. Tender enquiry documents for preparatory works contracts that do not require a legally binding railway plan and water court ruling will be distributed so that they are completed to the extent possible before the main contracts are started.

The tender calculation period shall always be long enough and be adapted to the nature of the object for procurement. By providing information in good time on the project contracts, the contractors can have sufficient time to find cooperation partners and to prepare their organisations in readiness for tendering. The following preliminary time schedule is proposed (updated November 2014:



19. Challenges and risks

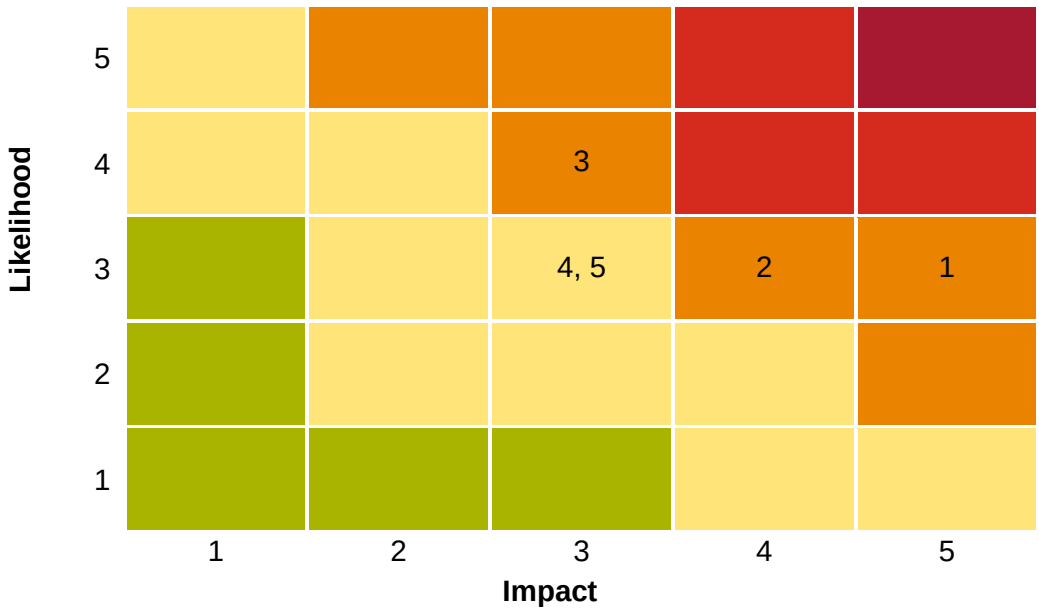
Project strategy for the division or responsibility and risks

The Project is working actively on identifying and handling risks, and is using the risk management system Exonaut risk. Responsibility and risk sharing is managed by following a common sector standard agreement and by the risks being shared on the principle that the party which can best manage the risk should also be responsible for it. This means, for example, the following:

- The employer shall be responsible for imponderable deviations in existing conditions, for example geotechnical and geohydrological assumptions that have a significant impact on the preconditions for execution of the works.
- In the event that the cost for the work cannot be calculated and priced with respect to risk to the extent necessary, the work shall be remunerated on the basis of a model which means that the tenderer does not have to add a risk mark-up.

Risks for the procurement strategy

The Project works actively on preventing risks in both the design and construction stages. The risks listed below are *specially identified for the West Link Project procurement strategy* with appurtenant contract division. A total of 19 risks have been identified and valued in terms of probability and impact in order to illustrate the highest valued risks for further processing. The five largest risks are shown in the matrix below in matrix and tabular form. The greatest risk that was identified is the one for the Swedish Transport Administration's relatively new contract model ECI (Early Contractor Involvement).



Analysis of the five greatest risks associated with the procurement strategy: 1 – ECI, 2 – enquiry, 3 – Lack of local competence, 4 – Large contract, 5 – Foreign contractors

Five greatest risks associated with the procurement strategy

No:	Risk	Description of impact	Motivation	Risk product	Activities to minimise risk
1	Unsuitable contract model ECI Early Contractors Involvement	Impact on quality, time and costs	New approach for both the Transport Administration and the Project. A number of risks may arise, including the possibility that the Project cannot agree with Early Contractor on, for example, a target price.	15	Increase the knowledge of the model in the Project by studying other Swedish and international projects, study visits for the feedback of experience, start procurement in good time
2	Deficiencies in tender enquiry documents	Impact on costs (Alterations and Additions, ÄTA) and quality	The procurements are conducted in stiff competition with price pressure, uncertainties or omissions in the enquiry interpreted to the Project's disadvantage	12	Procurements started in good time, tender enquiry documents to be carefully reviewed. Dialogue with market to reduce possibilities of speculation.
3	Lack of local competence	Impact on quality, time and cost	Major international suppliers require local partners for local competence. Regionally there is a lack of competence and resources in the sector with several competing projects.	12	Provide information on the procurements at a very early stage so that international players have ample time to find local partners. The transport administration will assist with information on possible partners.
4	Large contracts - turnkey contracts	Risk of delays and higher costs for the project	New work approach for the organisation. Very little experience of major turnkey contracts in a complex urban environment. Risk of the employer underestimating the need for resources and competence in the employer's organisation	12	Increase knowledge of turnkey contracts in the organisation with the help of experience feedback from other projects, seminars on turnkey contracts from both a legal and an organisational point of view
5	Foreign contractors	Delays and increased costs, misunderstandings can lead to mistakes and a greater risk of accidents	The large turnkey contracts will probably mean international contractors. A shortage of competence on local conditions, regulations, geology, design scope, time and costs for e.g. temporary traffic rerouting.	12	Commence procurements in good time to give international contractors time to search for local partners and find out about Swedish conditions. Be clear and pedagogical in the tender enquiry documents, negotiations and tender reviews, and be aware that that there may be a lack of knowledge of Swedish and local conditions

Project insurance

The Project has been given permission by Central Functions Economy and Management to provide an employer-controlled insurance solution for the project. This type of insurance means that the employer takes out insurance for the entire project that covers the whole project period up until commercial operation. All parties, i.e. the employer, contractors, sub-contractors and suppliers are insured for the whole project. See also the Swedish Transport Administration's Guidelines *Försäkringar vid entreprenader i Trafikverket (Insurances for Swedish Transport Administration Contracts* (TDOK 2013:0165)).

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