

*[Graph image]*

Tampere Rantaväylä (Highway 12) between Santalahti and Naistentlahti

ENVIRONMENTAL IMPACT ASSESSMENT PROCEDURE

**ENVIRONMENTAL IMPACT STATEMENT**

## CONTACT DETAILS

### CONTACT AUTHORITY

**Pirkanmaa ELY Centre**  
Environment and Natural  
Resources  
Yliopistonkatu 38, PL 297  
33101 Tampere

Leena Ivalo  
tel. 020 63 60050  
firstname.surname@ely-keskus.fi  
kirjaamo.pirkanmaa@ely-  
keskus.fi

### PROJECT MANAGER

**City of Tampere**  
PL 487  
33101 Tampere

Risto Laaksonen  
tel. 050 552 6625  
risto.laaksonen@tampere.fi

**Pirkanmaa ELY Centre**  
Transport and Infrastructure  
Yliopistonkatu 38, PL 376  
33101 Tampere

Pekka Petäjaniemi, Project  
Manager  
Finnish Transport Agency  
tel. 0400 238167  
pekka.petajaniemi@  
liikennevirasto.fi

### PLANNING CONSULTANT

**Sito Oy**  
Tietäjätie 14  
02130 Espoo

Sakari Grönlund  
tel. 020 747 6190  
sakari.gronlund@sito.fi

**Sito Tampere Oy**  
Tullikatu 10  
33100 Tampere

Ville-Mikael Tuominen  
tel. 020 747 6713  
ville-mikael.tuominen@sito.fi

**All comments and opinions on this Environmental Impact Statement should be signed and sent to the Pirkanmaa ELY Centre Registry by the date stated in the announcement for the assessment procedure.**

Base maps:

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Photography: Sito Oy

Aerial views: Lentokuva Vallas Oy / Hannu Vallas

Layout and artwork: Sito Oy

Printing: Kopijyvä Oy, Mikkeli, 2010

## **SUMMARY**

### **Purpose and objective of project**

The objective in developing the Tampere Rantaväylä is to find a solution in terms of the environment, urban structure, transport safety and traffic flow that will be sustainable well into the future. The aim is to maintain the traffic performance of Rantaväylä as an access road to Tampere and as part of Finland's national network of main roads, so that conditions will not deteriorate from their present level in the future. The development solutions to be implemented on Rantaväylä must improve the prerequisite conditions for the vibrancy of Tampere City Centre, allow the development of the Näsijärvi shore zone as part of the improvement of the efficiency, performance, attractiveness and free flow of the urban structure and to support a diverse, healthy and safe city life. The Rantaväylä solutions must not restrict the development conditions for public transport or for rail transport in general.

### **Development of Tampere Rantaväylä: some history and important decisions**

The road manager and the City of Tampere have drawn up a number of plans for the improvement of Tampere Rantaväylä's capacity and for the development of the planning area. Tunnel solutions have been under examination since the start of the 1990s. At the time of approval of the partial master plan for city centre traffic which entered into force on 2 March 2006, it was decided that the traffic solution will be based on the so-called "long tunnel alternative", and that future planning will proceed on the basis of this solution.

On 23 August 2007 the Pirkanmaa Environment Institute made the decision to apply the environmental impact assessment (EIA) procedure to the project (Journal No. PIR-2004-R-5-53). The City of Tampere launched an appeal against this decision, which was rejected on 26 June 2009 by the Hämeenlinna Administrative Court (02004/07/5199). The preparatory work for the EIA procedure was commenced in the late summer of 2009.

The use of the shores and the history of "Rantaväylä" have been thoroughly examined in connection with the assessment work.

### **The alternatives assessed**

In the EIA, the environmental impact of the following alternatives has been assessed:

- **Alt 0, the current roadway**

- **Alt 0+, the current roadway improved by level crossings**
- **Alt 1, a short tunnel (at Onkiniemi) and interchanges (multi-level junctions)**
- **Alt 2, a long tunnel as per the road plan.**

A very high volume of feedback on these alternatives has been received from the public; this has been categorised and examined in the assessment report. Suggestions which improve the features of the alternatives has been taken into account as appropriate.

On the basis of public feedback and traffic forecast studies, the mode of implementation of the Santalahti interchange for the tunnel alternatives has been reassessed, and the implementation possibilities and impact of the interchange leading into the centre of *[sic]* the long tunnel has been examined. On the basis of the preliminary planning, the best site for the ramps for the parallel junction leading to the centre of *[sic]* the long tunnel is the current Paasikiventie road area at Mustalahti harbour (alternative 2B). *[Translator's Note – although it is necessary to translate “keskelle” literally here in the interests of accuracy, this is potentially misleading in view of the traffic/tunnel layout being described and I suspect that the actual meaning intended is simply “into the long tunnel”.]*

In the general plan to be drawn up following the EIA procedure, consideration may be given to alternative ways of implementing various details. Due to the large number of combinations, it is not appropriate to examine alternative ways of implementation for all details as separate alternatives for comparison in the EIA procedure. The majority of impacts can be assessed with sufficient confidence via the four alternatives described above.

### **Assessment and planning responsibilities, and specialist expertise employed**

The project is the responsibility of the City of Tampere, and planning and assessment have been carried out in close cooperation with the Transport and Infrastructure Section of Pirkanmaa ELY Centre. The work has been steered by a project group, with Pekka Pitäjämäki from the Finnish Transport Agency acting as chairman and with members from the City of Tampere and the Transport and Infrastructure Section of Pirkanmaa ELY Centre.

Sito Oy and Pöyry Finland Oy have acted as consultants, and a special study of the impact on air quality has been prepared by the Finnish Meteorological Institute.

The Environment and Natural Resources Section of Pirkanmaa ELY Centre has acted as contact authority. During the course of the work, the structure of the assessment programme

has been presented to the contact authority, along with a description of how the Opinion obtained on the assessment programme has been taken into account when fine-tuning the content of the assessment.

### **Significant environmental impacts of project and realisation of objectives set**

The project group steering the EIA procedure has summarised the following objectives for the improvement of the Santalahti – Naistenlahti stretch of the Rantaväylä. These objectives have been formed from those of the City of Tampere, the road manager, the Tampere urban area, and Pirkanmaa County, and also from Finland's national land use objectives.

#### **Traffic system objectives**

Alternatives 1 and 2 (and 2B) promote equal travel opportunities in the urban area. Particularly in alternative 1 and subalternative 2B, accessibility into and out of Tampere City Centre will remain at least at the same level as at present, regardless of any increase in the population of the urban area.

The traffic system is simplest, and journey planning and travel easiest, in alternative 0, where the traffic system remains more or less as at present. Alternatives 1 and 2B go furthest towards steering the traffic which comes into contact with Tampere City Centre away from the network of streets in the centre.

The likelihood of being involved in a traffic accident on Rantaväylä will be greater than at present in alternatives 0 and 0+, and less than at present in alternatives 1 and 2 (and 2B). The best possibilities for reducing the risk of an accident for cyclists and pedestrians is in alternative 2.

Alternatives 0 and 0+ worsen the operating conditions for bus traffic, by steering traffic to the Piispala Highway. Alternative 2 features the best opportunities for supporting the operational and development conditions for, and the attractiveness of, walking and cycling. The development opportunities for rail transport can be safeguarded in all the alternatives.

#### **Land use objectives**

Alternative 2 (and 2B), in particular, supports the objective of concentrating the land use of the centre area. The basic features of alternative 2 (and 2B) mean that this will reduce the blocking impact of Rantaväylä on the urban structure, and enable the population and

functions of e.g. Onkiniemi, Särkänniemi and Lapinniemi to be better linked at present to the city centre, and accessible by foot.

Alternative 2 (and 2B) clearly creates better opportunities than the other alternatives for linking Tampere City Centre and the Näsijärvi shore zone more closely to one another.

### **City centre vibrancy objectives**

No alternative will directly prevent the securing of Tampere City Centre as a competitive area for living, working and commerce. In particular, alternative 2 (and 2B) and to some extent also alternative 1 create new prerequisites for attaining this objective in a way that is better than the other alternatives.

Developing Rantaväylä in accordance with alternative 2 (or 2B) will render possible a high-quality, attractive main connection for cyclists and pedestrians and for residential environments for the Näsijärvi shore zone between Santalahti and Naistenlahti. If some other alternative is chosen, attaining this objective will require some very large scale fills and other engineering structures along the current Rantaväylä.

For all alternatives, the challenge for the future is being able to secure the operating and development prerequisites for Särkänniemi to be one of Finland's most important tourism destinations. Alternatives 2 and 2B best support the possibilities of linking Särkänniemi closer to Tampere City Centre and to its other important tourist destinations more closely than at present. The accessibility of Särkänniemi will be best preserved in subalternative 2B. Alternatives 0+, 1 and 2 bring challenges for traffic signing and direction at Särkänniemi.

Alternative 2 offers the best opportunities to support the preservation of the cultural-historical nature of the Mustalahti harbour area. In alternative 1 – and also in alternative 0+, to a lesser extent – attainment of the objective is more uncertain.

### **Highway objective**

All the alternatives make it possible to preserve Rantaväylä as a national long-distance traffic connection. Alternatives 1 and 2 (and 2B) enable the throughput of this nationally important road to be maintained and improved from its current level. In alternative 2 (and 2B) the highway traffic has the least harmful impact on the urban structure.

### **Environmental objectives**

All alternatives realise the objective of avoiding harmful changes to groundwater, and allow advance prevention of risks relating to exceptional natural conditions.

It is not possible to bring about really radical reductions in greenhouse gases by any single alternative selection. Examining Pispala Highway, Rantaväylä and the western ring road as a single network, at the traffic volumes forecast for 2020 the carbon dioxide emissions generated in the short tunnel alternative will be 2.9%, and in the long tunnel alternative 4.7%, less than in alternatives 0 and 0+.

All the alternatives allow the preservation of nationally important cultural environments and natural heritage values.

The significant environmental impacts relating to the other environmental objectives set are presented in the following chapter.

## **Significant environmental impacts**

### *Air quality*

The national limit values defined for nitrogen dioxide are 40 µg/m<sup>3</sup> (annual average concentration) and 200 µg/m<sup>3</sup> (hourly concentration, 18 permitted exceedances per annum). The limit value for particle concentration is 25 µg/m<sup>3</sup> (annual average concentration).

The limit values which are issued on health grounds must not be exceeded in areas where people live and visit. As such, they do not apply to the assessment of concentrations forming at the tunnel mouth openings or motor vehicle roadways.

The national guide values defined for nitrogen dioxide are 70 µg/m<sup>3</sup> (the month's second largest 24-hour value) and 150 µg/m<sup>3</sup> (the 99<sup>th</sup> percentile of the month's hourly values).

The national guide values are not as binding as the limit values, but they are used (for example) as support in urban planning and in siting activities which involve a danger of air pollution. The World Health Organization (WHO) has also issued health-based recommendations and interim targets for particulate 24-hour and annual concentrations.

In alternatives 0 and 0+, people are exposed to impurity concentrations, particularly in the densely populated areas in Tampere City Centre and Tammela. Nitrogen dioxide exposure for the entire study area population is 460 021 µg/m<sup>3</sup> per annum, while particle exposure is 285 498 µg/m<sup>3</sup> per annum. About 12 000 people will be exposed to concentrations which

exceed the WHO's particle annual guideline value. Neither the limit nor the guide values defined for nitrogen dioxide or particles will be exceeded.

In alternative 1, people are exposed to impurity concentrations, particularly in the densely populated areas of Tampere City Centre and Tammela. In the entire study area, the exposure figure for nitrogen dioxide is almost the same as in alternative 0. About 7 000 people will be exposed to concentrations exceeding the WHO's particle annual guide value. Neither the limit nor the guide values defined for nitrogen dioxide or particles will be exceeded.

In alternative 2, people are exposed to impurity concentrations, particularly in the densely populated areas of Tampere City Centre and Tammela. The limit value defined for nitrogen dioxide is exceeded in a small area around the tunnel mouth openings. The limit value is not exceeded in the area which is actually intended for residence or for visiting. The guide values defined for 24-hour and hourly concentrations of nitrogen dioxide are exceeded in the vicinity of the tunnel mouth openings. The limit value set for particles is exceeded in the area immediately surrounding the tunnel mouth openings. The limit value is not exceeded in the area which is actually intended for residence or for visiting.

Exposure would be increased in the vicinity of the tunnel mouth openings, and decreased in the city centre area. In the entire city centre area examined, the exposure figure for nitrogen dioxide is almost the same as in alternative 0. About 9 000 people will be exposed to concentrations which exceed the WHO's annual guide value for particles, while about 400 will be exposed to concentrations exceeding the annual guide value for nitrogen dioxide.

In the further planning for a solution in accordance with alternative 2, tunnel mouth solutions need to be developed to improve air quality at the mouth openings, particularly at Santalahti, and local-scale emission monitoring inspections need to be drawn up for the tunnel mouth areas in order to check on these solutions.

### ***Problems during working times***

In alternative 1 the tunnel is located quite near a dolphinarium. Construction work may cause vibration which, by its unimpeded spread to the dolphins' pools, could in turn have harmful effects on the dolphins at Särkänniemi.

Quarrying vibration can be limited by planning the charge used so that no damage is caused to buildings.



It is estimated that the tunnel quarrying work will cause disturbance to everyday life during the daytime within, at most, a 100 metre radius of the point of blasting. In the case of the short tunnel, the progress of the tunnelling work will be slower than three metres a day, and so the period of disturbance will be around three months. Construction of the concrete sections at the ends of the tunnel will clearly cause more disturbance than the rest of the tunnel quarrying.

In alternative 2, the tunnel is situated at such a distance from the dolphinarium that the quarrying will probably not cause vibration which, by its unimpeded spread to the dolphins' pools, could in turn have harmful effects on the dolphins at Särkänniemi.

Quarrying vibration can be limited by planning the charge used so that no damage is caused to buildings or (for example) to the Vapriikki collections.

It is estimated that the tunnel quarrying work will cause disturbance to everyday life during the daytime within, at most, a 100 metre radius of the blasting point. The progress of the tunnelling work will be, on average, three metres a day and so the period of disturbance will be about two months.

### ***Generation and heaping of blasted rock***

In alternative 1, an estimated 130 000 solid cubic metres (m<sup>3</sup>kr) of blasted rock will be generated. It is estimated that the quarrying will last for 6-7 months. Blasted rock will also be generated from the open sections, but clearly less than in the case of the tunnel quarrying. In alternative 2, an estimated 600 000 m<sup>3</sup>kr of blasted rock will be generated, while alternative 2B will generate 60 000 m<sup>3</sup>kr over and above this. The quarrying will last for well over a year. The stone aggregate will be heaped as close as possible to the various construction points, in accordance with requirements at the time of construction and the market situation. Heaping in water will require a special permit.

### ***Landscape and cultural environment***

In alternatives 0 and 0+, views and the overall picture of the landscape will remain as at present. In alternative 1 the Santalahti junction area will be build up more intensively than at present as a traffic environment. Mustalahti will, in landscape terms, represent a problematic two-level solution. In alternative 2, the Santalahti interchange area will be the same as in

alternative 1, and in addition to this an exhaust air pipe will be placed in the area. Otherwise, the long tunnel is the most favourable in terms of the landscape.

### ***Traffic noise***

In alternatives 0 and 0+, the problem points from the aspect of the noise caused by road traffic will remain the same as at present. The growth in traffic volumes will further worsen the noise situation at these problem points, and expose new areas to noise which exceeds the guide values. The number of residents exposed to noise will be greater than at present.

In alternative 1 the noise situation will improve only in a restricted area as road traffic is transferred to the short tunnel. This alternative's other changes in the highway, in its geometry and in other traffic arrangements will not significantly restrict the spread of road traffic noise. The number of residents exposed to noise will be greater than at present.

In alternative 2, with road traffic being transferred to the long tunnel, the noise situation in residential areas and vulnerable points in the vicinity of the highway will improve. Furthermore, concentrating traffic onto Highway 12 will reduce traffic in the city centre area and thus improve the noise situation. The number of residents exposed to noise will be lower than at present.

### **Prevention and mitigation of adverse effects**

Possibilities for mitigating adverse effects include general and targeted information and publicity at the various phases of construction, noise control, vibration monitoring, and repair or reimbursement of any damage caused to buildings, the construction of an exhaust air pipe in tunnel alternative 1, increasingly precise and detailed designs for tunnel mouth openings (alternative 2) in the further planning, timing of blasting and transportations, groundwater management and arsenic risk management.

### **Preliminary proposal for monitoring programme**

Approval of monitoring programmes takes place partly at the time of the decision to approve the general plan and partly at the time of the separate, subsequent permit decisions. In the tunnel alternative, for example, on the basis of the terms and conditions of a permit issued under the Water Decree, the person responsible for the project will draw up inspection programmes for the periods of construction and operation, which will be approved and supervised by the environmental authority.

The objects of monitoring may be groundwater, surface water or land hollows monitoring, arsenic content monitoring, air quality monitoring, and monitoring of impact on humans.

In the long tunnel alternative there will be a consideration of whether enhanced inspection during the period of monitoring is necessary, and assessment will be carried out of the need for supplementation of the safety plan referred to in the Dam Safety Act for the Tammerkoski dam structures, and (if necessary) its supplementation during the time of construction work.

### **Permits and decisions necessary for implementation**

The decision to approve the general plan is made by the Finnish Transport Agency.

Possible changes to the land use planning: master and town plans are approved by the City of Tampere.

Permits pursuant to the Water Act and Environmental Protection Act, which depending on the case concerned are granted by the City, the ELY Centre or the regional administration.

Environmental permits required for stonecrushing, which are granted by the City of Tampere or the Pirkanmaa ELY Centre, depending on the scale of the operation.

Permits or notifications during the period of construction (for example noise or vibration notification or notification of the use of waste in earthworks). Notifications are made to the City of Tampere.

Notification of contaminated ground will be handled by the Pirkanmaa ELY Centre.

### **Interaction and participation**

On 8 September 2009, the person responsible for the project issued a press release to announce the commencement of the drafting of the EIA; in October 2009, the alternatives; and on 12 March 2010, a public event relating to the Assessment.

The contact authority takes care of the project's official announcements in the press. The contact authority will give notifications at four phases: when the EIA Programme and the EIA Statement are placed on public display, and when the contact authority issues opinions on these. Press releases have been issued regarding the EIA procedure's official commencement on 13 October 2009 and the issue of the Opinion on the assessment programme on 22 December 2009. The assessment programme was displayed on the City of

Tampere's official notice board between 15 October and 18 November, and in the newspapers "Aamulehti" and "Tamperelainen".

### **Timetable for further planning**

The EIA procedure ends in summer 2010, with the contact authority's Opinion on the EIA Statement. A general plan will be drawn up from one of the alternatives during 2010. The traffic engineering and other features of the other examined alternatives will also be presented in the general plan. The general plan will be put on public display in accordance with the Highways Act, and the necessary opinions on it will be requested from authorities and interest groups.

If the long tunnel alternative is selected in the general plan for further planning, the previously drafted road plan outline can be supplemented and submitted for the approval procedure following approval of the general plan. Otherwise, it will be necessary to draw up a new road plan in accordance with the Highways Act for the relevant alternative.

At the earliest, construction planning can start in 2011, and the actual construction work can begin in 2012. Depending on the alternative chosen, the period of construction will be 2-3 years. In the tunnel alternatives, traffic on the new Rantaväylä can commence, at the earliest, in 2015.