

Agile pilots: Three-dimensional modelling of the street environment by transport mode (Mobility Lab Helsinki)

INVITATION TO TENDER

07.02.2023

Procuring entity

Forum Virium Helsinki Oy

Background information

The Mobility Lab Helsinki project accelerates the creation of new businesses, products and services for companies by promoting the development of Helsinki's digital twin for mobility, information models and data reserves and by supporting their efficient utilisation. The project is being implemented by the City of Helsinki and Forum Virium Helsinki.

One of the development objectives is testing the detailed 3D modelling of the traffic environment in a form that can be converted to CityGML and applied to analyses and simulations.

As part of the Mobility Lab Helsinki project, Forum Virium Helsinki is implementing this open call for agile pilots, which focuses on the three-dimensional modelling of Helsinki's street environment in the selected test area, taking into account the areas used by different modes of transport and their intersections.

The goal of the open call is to produce a 3D surface model of the street environment, as well as ensuring that it is significantly more detailed than the City's current two-dimensional materials. The surfaces are to be segmented by mode of transport, to allow the study of their respective traffic environments.

The data will also be used in producing a test data set in CityGML 3.0 format. The goal of this work is to create understanding of the possibilities the new standard offers for companies, researchers and developers. Additionally, we are aiming to produce the first CityGML 3.0-format open test data on the Helsinki area.

Nature of the pilot project/procurement

With this open tender, Forum Virium Helsinki Oy is looking for one or more suppliers to produce 3D surface models of street spaces.

The goal is for it to be possible for the test material produced to later be converted to CityGML 3 format by the customer (Forum Virium Helsinki and the City of Helsinki). CityGML 3.0 allows for the traffic environment to be described as centre lines, point clouds, 3D surfaces and spaces. In this experiment, a surface representation, i.e. a polygonal surface model, is sought.

More information about the description of the CityGML 3.0 traffic environment:

<https://tum-gis.github.io/road2citygml3/>

For modelling the street environment, existing data may be used as a starting point. Alternatively, the modelling may rely on a mapping campaign, as long as all the work is included in the offer. In addition to 3D modelling, the source materials used must also be provided to the customer, and may include, for example:

- terrain data measured using different methods
- existing GIS data (e.g. base map)
- plans (e.g. 2D street plans and traffic plans)
- point clouds (e.g. mobile laser scanning)
- terrain models
- area boundaries, fold lines (mapped, digitised) and property data used for classification, for example
- road centre line data.

In addition to the materials, a free-form report in PDF format on the implementation of the work must be submitted, explaining the methods by which the materials were produced and the processing of the materials.

In the materials to be produced, the street environment (including roadways, pavements, cycling areas and other traffic areas, such as rail traffic areas, as well as road markings) must be modelled as a set of three-dimensional mesh surfaces in

such a way that the objects of the street environment are separated into objects by lane and mode of transportation (Appendix 1 – example image of modelling).

In the modelling, the GK25FIN coordinate system and the N2000 height system are used as coordinates. In terms of location accuracy, the data must meet the requirements of measurement class 1e (JHS 185).

The test material is to be produced for a limited area in Helsinki (possible areas are described in Appendix 2). The detailed area will be agreed on with the implementers selected.

The material is to be provided as a 3D-CAD file (DGN format v8), with the items divided into objects. Metres are to be used as the unit of measurement in the modelling.

The results and lessons learned from the experiment will be shared at the events of the Mobility Lab Helsinki project and at a seminar held in spring 2023.

A maximum of three (3) experiments will be selected for the pilot round. Forum Virium Helsinki reserves the right not to select any pilot to proceed.

The price of one trial is a maximum of EUR 7,000 (VAT 0%). The total value of the pilots to be procured is a maximum of EUR 21,000 (VAT 0%).

The pilots will be carried out between 27 March 2023 and 31 May 2023. The duration of a pilot is a maximum of two months.

Who can participate?

The invitation to tender is open to companies with a valid European business ID. The personnel and administration of Forum Virium Helsinki Oy and their interest groups are prohibited from submitting tenders. The submission of a tender as a consortium ('team') is allowed. In this case, the team will appoint a company from among them to act as the contact party for this tender. This company will also serve as the procurement contract party. The procuring entity requires the procurement contract to be signed with a single supplier, with the other parties named in the tender allowed to serve as its subcontractors.

Timetable of the tender process

The deadline for tenders is 06 March 2023 at 16:00 (EET, Helsinki time). The evaluation will be carried out by 13 March 2023, and the pilot projects are planned to begin in March 2023.

Bidders are required to fill in a dedicated information form <https://oc.fvh.io/three-dimensional-modeling-of-the-street-environment-by-transport-modes-mobility-lab-helsinki/>.

In addition to filling in the form, Bidders must submit their actual tender as an attachment. Each Bidder can also submit a maximum of three (3) other attachments supporting their tender.

Price

The total budget of the procurement is up to EUR 21,000. The total number of pilot projects is three (3). The maximum cost of a single pilot project (= price ceiling) is EUR 7,000, VAT 0%.

Providing the prices as a range is not permitted. Forum Virium Helsinki Oy will not commit to covering any costs or expenses not included in the tender (e.g. accommodation or travel expenses). The procurement price must cover the implementation of the service in its entirety, including costs resulting from insurance and permits as well as taxes and charges levied by the authorities, for example.

Tender evaluation procedure

The winning tenders will be selected by the evaluators based on scores assigned in accordance with the evaluation criteria.

The procuring entity has the right to decide not to carry out the procurement, considering factors such as the total funding available.

The final selection will be based on the evaluation criteria.

All Bidders will receive an email announcement of the results and reasoning.

Evaluation criteria

For the purpose of evaluation, tenders submitted will be scored according to the following formula:

The procurement criteria are 10% price and 90% qualitative evaluation, on a scale of 1–10.

Tenders will be evaluated based on the following quality criteria in accordance with the specified weightings: 1) novelty and innovativeness (30%), 2) feasibility (30%), 3) impact and effectiveness (30%).

Price is scored as specified above.

Each evaluation criterion is scored on a scale of 0–10 points. The points for each criterion will be multiplied according to their weighting. The maximum total score that a tender can receive is 100 points (including the price score).

Evaluation criteria scoring

1. Novelty and innovativeness (total max. 30 points)

- The novelty value and innovative qualities of the service or product (evaluation is carried out based on the personal competence and general and special know-how of the members of the evaluation panel selected by the procuring entity).
- The pilot project introduces new practices/solutions/perspectives in the production of data in CityGML 3.0 format.

2. Feasibility (total max. 30 points)

- The description of measures, timetables and resources shows that the service can be implemented in a high-quality and safe manner, within the agreed timeframe and at the location specified in the invitation to tender.
- The Bidder demonstrates that they have sufficient competence and resources to implement the service. Competence of the personnel assigned for the pilot project, e.g. CVs or other characterisations and support material.
- Other partnership arrangements (the implementing team, subcontractors and collaboration with the sector or other operators, for example) are described well.

3. Impact and effectiveness (total max. 30 points)

- The intended impact of the service and the method to verify the impact are described clearly.

- The service can be replicated or reproduced.
- The solution to be tested creates new possibilities, methods or practices for collecting, combining and utilising data.

4. Price

- The calculation formula for the price comparison is: the lowest price / the comparable price x 10 points.

Tenders evaluated to be of equal value may receive the same score. Each criterion will be evaluated as a whole. Points will be awarded at a minimum interval of one (1) point and expressed to 0.1 decimal place(s).

In the event that multiple tenders receive the same total score, the deciding factor will be the price score of the tenders, and in the event that multiple tenders also receive the same price score, the deciding factor will be the score for the individual quality criteria in numerical order from lowest to highest.

Procurement decision and contract

The procurement decision will be made based on a separate decision issued by Forum Virium Helsinki Oy. The procurement decision and its grounds will be provided in writing to all concerned parties.

A contract with the service provider(s) selected for the service is only established upon the signing of a separate contract. The procuring entity has the right to refuse to establish a contract if it becomes apparent after the issuing of the procurement decision that the service provider does not fulfil the eligibility criteria specified in the invitation to tender.

The separate contract between Forum Virium Helsinki Oy and the selected service provider(s) will be signed by the end of March 2023.

Service providers' own contract terms will not be accepted and cannot be included in tenders.

Implementation of the pilot project

The pilot project will be confirmed with a separate contract and payment terms.

The price of the pilot project must be indicated exclusive of VAT and will be paid based on an invoice. The pilot project will be billed in one or more instalments, depending on the scope of the pilot project and the supplier's resources. The payment term is defined in the contract.

The supplier selected for the pilot project will be subject to a separate reporting obligation based on the contract.

Forum Virium Helsinki will assist the supplier in finding contact persons related to their pilot project within the City of Helsinki.

As part of the piloting program, a seminar will be held, where the results of the pilots will be distributed to stakeholders and other interested parties.

The seminar will take place during the spring of 2023. The companies participating in the pilots will present the results and lessons learned from the experiments at the event.

The concept of agile pilots includes interaction and sharing of lessons learned during the process. The aim is to promote dialogue between different experiments and relevant actors.

Forum Virium Helsinki, the City of Helsinki and its unincorporated enterprises and subsidiaries retain the right to use the pilot project and tender process in their communications.

The contract will be signed in March 2023. The pilot project period will also start at that point, lasting for maximum of two (2) months.

Further information and FAQ

On behalf of the Mobility Lab Helsinki project, participants have access to a range of background information. The information is available on the project website.

Link to the project website: <https://mobilitylab.hel.fi/opencall-2023>

Questions about the invitation to tender can be submitted during the tender period. Any questions about the invitation to tender must be submitted in writing by 20 February 2023 to matias.oikari@forumvirium.fi (subject line: Kokeiluhaku/Mobility Lab Helsinki).

The questions submitted and the answers to them will be published here:

<https://mobilitylab.hel.fi/opencall-2023>

About the procurement process

General principles of the procurement

As part of the Mobility Lab Helsinki project, Forum Virium Helsinki acquires experiments to be implemented in the Helsinki area. In procurements, the current law on public procurement and right-of-use agreements 1397/2016 ('the Procurement Act') is followed. A HILMA announcement about the competition will be published separately (<https://www.hankintailmoitukset.fi/en/>).

This procurement is classed as a public procurement below the national threshold value.

The tender process is completely electronic. Bidders must provide their contact email addresses.

After the end of the tender period, the tenders will be opened and evaluated. Forum Virium Helsinki Oy may request that bidders submit, add, clarify or supplement incomplete or incorrect information and documents within a specified period. Bidders who do not correspond to the invitation to tender will be excluded from the evaluation.

Forum Virium Helsinki Oy treats all the parties participating in the tender process and other suppliers in a non-discriminatory and equal manner, operating transparently and in accordance with the principle of proportionality. After the evaluation, a decision will be issued on the procurement. The decision will include the supplier selected and the grounds for the selection.

Language

The tender process will be carried out in Finnish and English. Some of the related materials are not translated into Finnish. Tenders must be submitted in Finnish or English.

Order of precedence

Order of precedence:

1. The tender submitted as an attachment via the information form page (<https://oc.fvh.io/three-dimensional-modeling-of-the-street-environment-by-transport-modes-mobility-lab-helsinki/>)
2. The information provided on the form
3. The information presented in the attachments to the tender

In the event of contradictions in the information provided:

1. Any differences between the prices presented on the form and in the attachments will result in the tender being rejected as invalid.
2. Any contradictions in the statements of price provided in the attachments will result in the tender being rejected as invalid.
3. Not including price information in the attachments and/or the form will result in the tender being rejected as invalid.
4. Not including the actual tender as an attachment will result in the tender being rejected as invalid.

Tenders must be valid until 30 June 2023.

Content of the tender

The tender must:

- describe the content, quality and scope of the service
- include the total price of the service and a breakdown of the costs
- detail the equipment and personnel used for the service, and
- indicate any professional and trade secrets.

Before the evaluation of tenders submitted, the procuring entity will ensure that the Bidders fulfil the eligibility requirements, which include:

- the good financial standing of the Bidder (the Bidder must attest in its tender that it has sufficient resources to implement the service/pilot project being procured)
- fulfilment of the obligations specified in the Act on the Contractor's Obligations and Liability when Work is Contracted Out.

In other words, Bidders must provide, upon request, certificates and statements of taxes paid and pension insurance premiums and any necessary insurance policies in accordance with the Act on the Contractor's Obligations and Liability when Work is

Contracted Out. This obligation shall remain in effect even after the issuing of the procurement decision.

The Bidder must have sufficient financial resources relative to the scope and quality of the procurement/pilot project. The Bidder agrees to supply a statement from a credit data institution (Suomen asiakastieto Oy or similar) at their own cost upon request. Upon request, the Bidder must also supply Forum Virium Helsinki Oy with its financial statements for the most recent financial period. If the Bidder cannot supply its financial statements due to having only recently commenced operation, the Bidder can, upon request, supply a report of its solvency and financial standing in another manner approved by Forum Virium Helsinki Oy.

The eligibility requirements and the evidence requested to determine their fulfilment are relevant to the Bidder's capacity to provide the service being procured and have been proportioned to the nature, purpose and scope of the procurement.

The procuring entity reserves the right to decide not to carry out the procurement in its original scope due to insufficient tenders or other reasons related to the eligibility of the tenders. The entire procurement may be cancelled if the tenders are considered insufficient in terms of content with regard to the invitation to tender. Insufficient tenders include, but are not limited to, tenders that do not meet the conditions and objectives of the invitation to tender.

The procuring entity reserves the right to not accept all tenders if they are very similar in terms of content. In such a situation, the procuring entity may still select other, non-similar tenders even if they had a lower score than the similar tenders excluded from the tender process.

Tenders submitted by the deadline will be evaluated by Forum Virium Helsinki Oy's panel of experts.

Rights

The experiment is to be procured as a service, and not as materials or equipment. Equipment or other material may form part of the implementation of the experiment.

Unless otherwise agreed, the results, lessons learned and conclusions arising from the service/pilot are the property of the Bidder.

Forum Virium Helsinki Oy and the City of Helsinki have the right to freely use the results, lessons learned and conclusions from the pilot in Forum Virium Helsinki Oy's operations and future projects. The pilot does not affect the existing intellectual property rights of Forum Virium Helsinki or the Bidder.

Forum Virium Helsinki Oy and the City of Helsinki have the free and continuous right to use, copy, edit, pass on and publish the data produced in the service/pilot without the separate permission of the provider, for any purpose of use. This data includes the raw data collected during the service/pilot, the material handed over at the end of the pilot, any data retrieved and produced by Forum Virium Helsinki Oy from the open interfaces, and any other data and material produced in the pilot. The provider is not responsible for any errors, quality or derivatives of such data or their possible effects.

Changes

Forum Virium Helsinki Oy may change and cancel events and presentation sessions or change the way in which they are organised so that they are held remotely or delivered in the form of recorded materials due to the COVID-19 pandemic or other exceptional circumstances. These arrangements will not affect the duration of the invitation to tender or the opportunity for operators to ask further questions electronically.

Info event

An info webinar about the open call will be held on Wednesday 15 February 2023 from 14:00 to 15:00

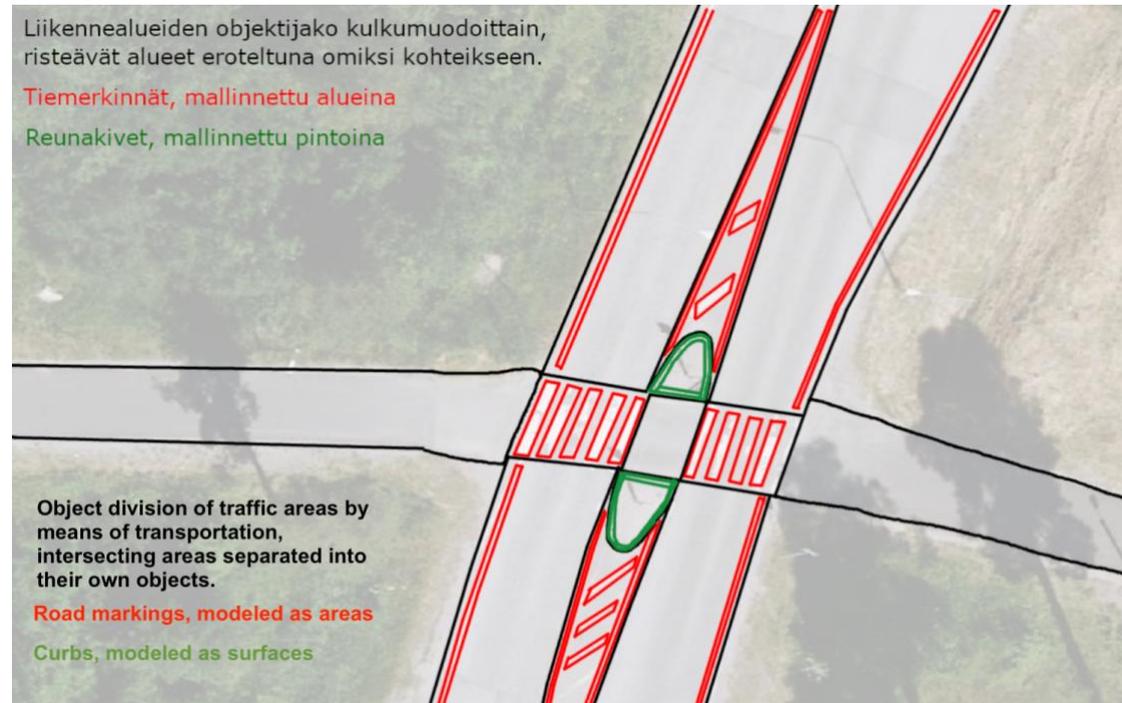
The registration link can be found on the trial search website:

<https://mobilitylab.hel.fi/opencall-2023>

Contacts

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Appendix 1: Example of the street modelling



Appendix 2: Possible areas

