

# Information pack on the upgrade of the uilenburg substation

October 2023



# Introduction

In May 2023, Bureau Bewonerszaken published its report on the neighbourhood survey concerning upgrading the substation (in the rest of this document we will use the term ‘electricity substation’) on Nieuwe Uilenburgerstraat. This showed that local residents required further information on several topics. The report can be found at [www.bureaubewonerszaken.nl/uilenburg-amsterdam](http://www.bureaubewonerszaken.nl/uilenburg-amsterdam) (in Dutch).

## Open evening and information pack

An open evening was held last Monday (30 October) in which Liander, together with the Municipality of Amsterdam and GGD Municipal Health Service, responded to questions raised by local residents. We also provided information on the three options currently under consideration. This information pack sets out the information we provided.

## Follow-up survey

We would like to hear your response to the information provided and the three options we are considering. We have asked Bureau Bewonerszaken to once again collect your responses and incorporate them in a report.

Click [here](#) to participate in the survey conducted by Bureau Bewonerszaken.



It takes about 10 minutes to complete. Thank you for taking the time to share your questions and comments with Bureau Bewonerszaken.

## What will happen to your responses?

Bureau Bewonerszaken will collect the responses and incorporate them in a report that will be shared with Liander, the Municipality of Amsterdam and local residents. This report will also be sent to the Municipal Executive as part of the documents required for decision-making by the Municipal Executive on the site of the electricity substation.

Your address information will be processed anonymously. So no names or addresses of individuals will be mentioned in the report. Bureau Bewonerszaken will use the address information you enter to map comments and questions by location.

# Table of content

This information pack sets out the following:

<b>1. About the new electricity substation</b>	<b>3</b>
1.1 What is going on in the city	3
1.2 Why does the electricity substation remain on Nieuwe Uilenburgerstraat?	4
1.3 Is the magnetic field around the electricity substation harmful to health?	5
What is an electricity substation and where does a magnetic field form?	5
What is known about magnetic fields and what is the Municipality doing?	5
What exactly is the situation at the Uilenburg electricity substation?	5
1.4 How much noise will the new electricity substation make?	5
<b>2. Site options</b>	<b>6</b>
2.1 What possibilities does Liander see for this site?	6
<b>3. About the construction work</b>	<b>9</b>
3.1 How will Liander deal with disruption caused by construction?	9
3.2 How do we prevent construction damage?	9
3.3 What does the decision-making process look like?	10
3.4 Design of forecourt and building	10

# 1. 1. About the new electricity substation

## 1.1 What is going on in the city?

We are used to electricity flowing like water from a tap. But this is no longer a given. Since the 1970s, our power consumption has tripled, and the electrical grid through which the power passes has expanded with it all this time. However, demand for power has been rising so fast in recent years that soon our power grid will no longer have the capacity required. In fact, Amsterdam is expected to use three to four times as much power in 2050 as it does today.

To accommodate that growth, a power grid that is twice as large is needed. It also needs to get smarter, as more and more people and businesses generate their own power. Expanding our power grid is a huge puzzle. Amsterdam is very built up, both above and below ground. Figuring out where any cables fit is a really big job. Not to mention working out where substations and distributor boxes may or can be built. These also need to be connected properly to the existing power grid.

The Municipality of Amsterdam ensures that everything is done in accordance with the law and regulations and that the work is coordinated. The upgrade itself is managed by grid operators TenneT and Liander. Until at least 2035, we are working all over the city, renovating or expanding 13 electricity substations like Uilenburg and building 30 new ones. In addition, 2,600 new distributor boxes are required and, of course, hundreds of miles of cable to connect it all.

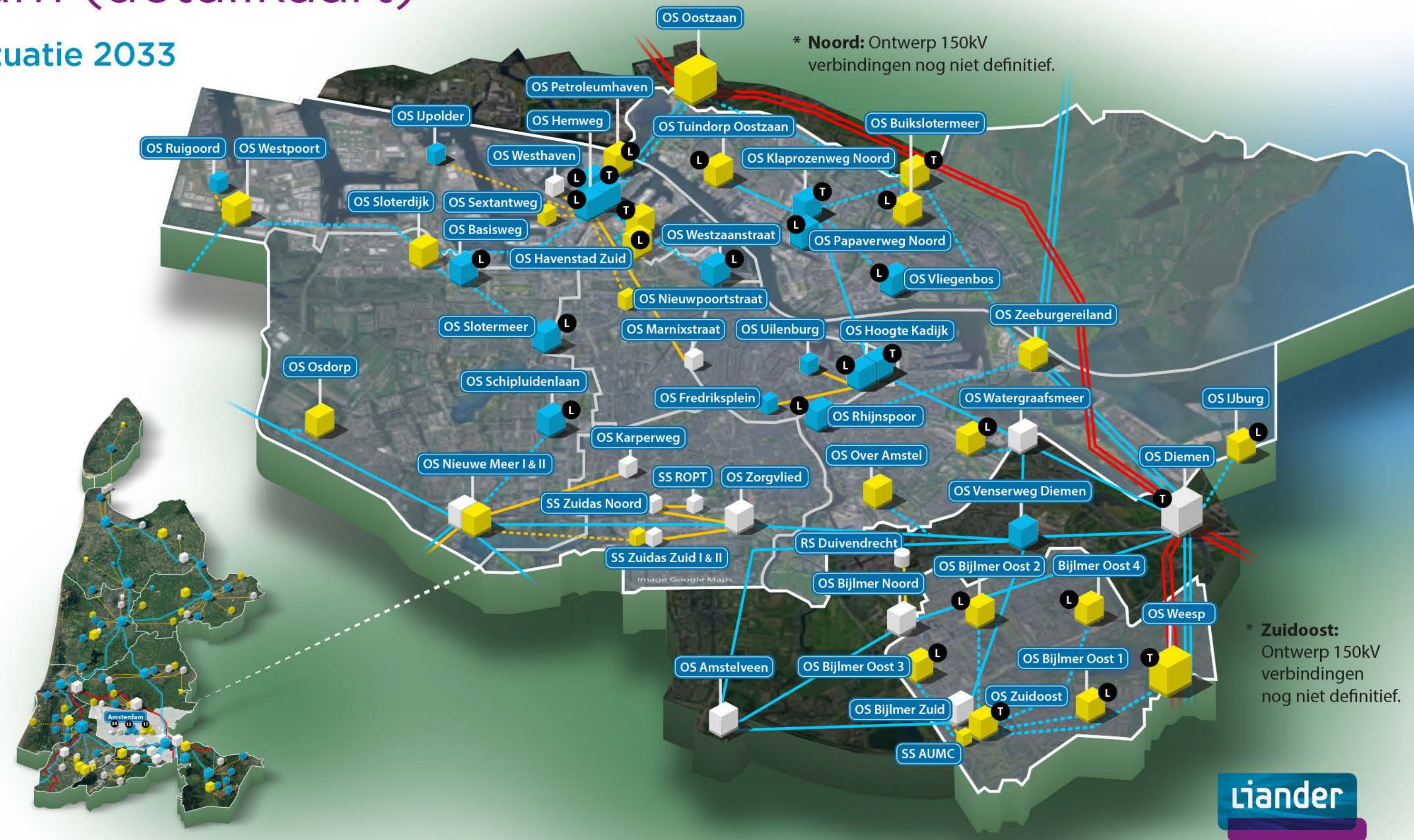
1.2 Why does the electricity substation remain on Nieuwe Uilenburgerstraat?  
 An electricity substation needs 1,500 square metres of above-ground space, must not be too far from the places it supplies power to, and must be connected to the existing power grid. No other suitable 1,500-square-metre location is available nearby. The image below shows what the network of substations will look like in Amsterdam in 2033.

# Amsterdam (detailkaart)

## Toekomstige situatie 2033

### Legenda

-  **Onderstation (OS) 380 kV**  
\*TenneT + Liander
  -  **Onderstation (OS) 150 kV**  
\*TenneT + Liander
  -  **Onderstation (OS) 50 kV** Liander
  -  **Regelstation (RS) 20-10 kV** Liander
  -  **Schakelstation (SS) 20 kV** Liander
- \* **Uitzondering op beheer:**  
Daar waar we afwijken van de standaard, zie de twee symbolen hieronder
-  **TenneT in beheer**
  -  **Liander in beheer**
-  **Hoogspanningsnet 380 kV** TenneT
  -  **Hoogspanningsnet 150 kV** TenneT
  -  **Kabelverbinding 50-20 kV** Liander
  -  **Station - nieuw te bouwen**
  -  **Station - vervanging /uitbreiding**
  -  **Hoogspanningsnet 150 kV nieuw** TenneT
  -  **Kabelverbinding 50 kV nieuw** Liander



### 1.3 Is the magnetic field around the electricity substation harmful to health?

During the information evening, a specialist from the GGD Municipal Health Service was present to provide information on magnetic fields. The information below was provided by them.

#### What is an electricity substation and where does a magnetic field form?

An electricity substation roughly consists of transformers and switch boxes. The transformers convert the voltage of the incoming current from 50,000 volts (50 kV) to 10,000 volts (10 kV). The switch boxes distribute the outgoing power over cables to transformer boxes in the district and to businesses. A magnetic field is created wherever electricity flows, even when we use electricity at home. Exactly what the magnetic field around the Uilenburg electricity substation looks like depends in part on the position of the transformers and the various technical measures Liander takes to reduce the magnetic field.

#### What is known about magnetic fields and what is the Municipality doing?

Scientific research shows that people who live near overhead high-voltage power lines (the large pylons with power lines) face a greater health risk than those who live further away from them. The magnetic field could play a role, but there is no scientific evidence for this. No such research has been done for electricity substations. For more information on health risks and advice from the Health Council of the Netherlands, GGD refers to [kennisplatform.nl](https://kennisplatform.nl) (in dutch).

Because of the association between high-voltage power lines and health risks, the Municipality of Amsterdam is working on a precautionary policy regarding magnetic fields at electricity substations. GGD is involved in this process in an advisory capacity.

#### What exactly is the situation at the Uilenburg electricity substation?

Liander is taking several technical measures during construction that will keep the magnetic field as small as possible. This is stipulated in agreements with the central government.

For the Uilenburg electricity substation, the Municipality of Amsterdam wants to prevent, as much as reasonably possible, existing homes from being exposed to an annual average magnetic field stronger than 0.4 microtesla (the unit of magnetic field strength is tesla). The limit of 0.4 microtesla is not a legal limit.

Homes that are further than 25 metres from the electricity substation will not encounter an annual average magnetic field stronger than 0.4 microtesla after the upgrade has been completed. If there are homes within 25 metres of the future electricity substation, the annual average magnetic field could be stronger than 0.4 microtesla. In that case, Liander will calculate the annual average magnetic field. If it turns out that homes are in an annual average magnetic field stronger than 0.4 microtesla, Liander will investigate what measures are possible to shield these homes, and consultations between the residents and the Municipality of Amsterdam and GGD will take place for bespoke solutions.

### 1.4 How much noise will the new electricity substation make?

For homes and other noise-sensitive destinations, such as schools and daycare centres, we have legally established noise regulations in the Netherlands. An electricity substation may normally produce a maximum noise level of 50 decibels (dB(A)) at the façade of sensitive buildings during the daytime (07:00-19:00 hrs). For evenings (07:00-23:00 hrs), this is a maximum of 45 dB(A) and at night (23:00-07:00 hrs) a maximum of 40 dB(A). In the electricity substation, the transformers make the noise. For the Uilenburg electricity substation, heavy walls and a heavy roof will be used for adequate sound insulation and sound attenuators and/or sound attenuating grilles in the wall openings (needed for ventilation of the transformers). Liander is having calculations done by and is getting advice on the measures from an independent acoustic consultancy. The Municipality of Amsterdam and the Environmental Service are also involved in this process.

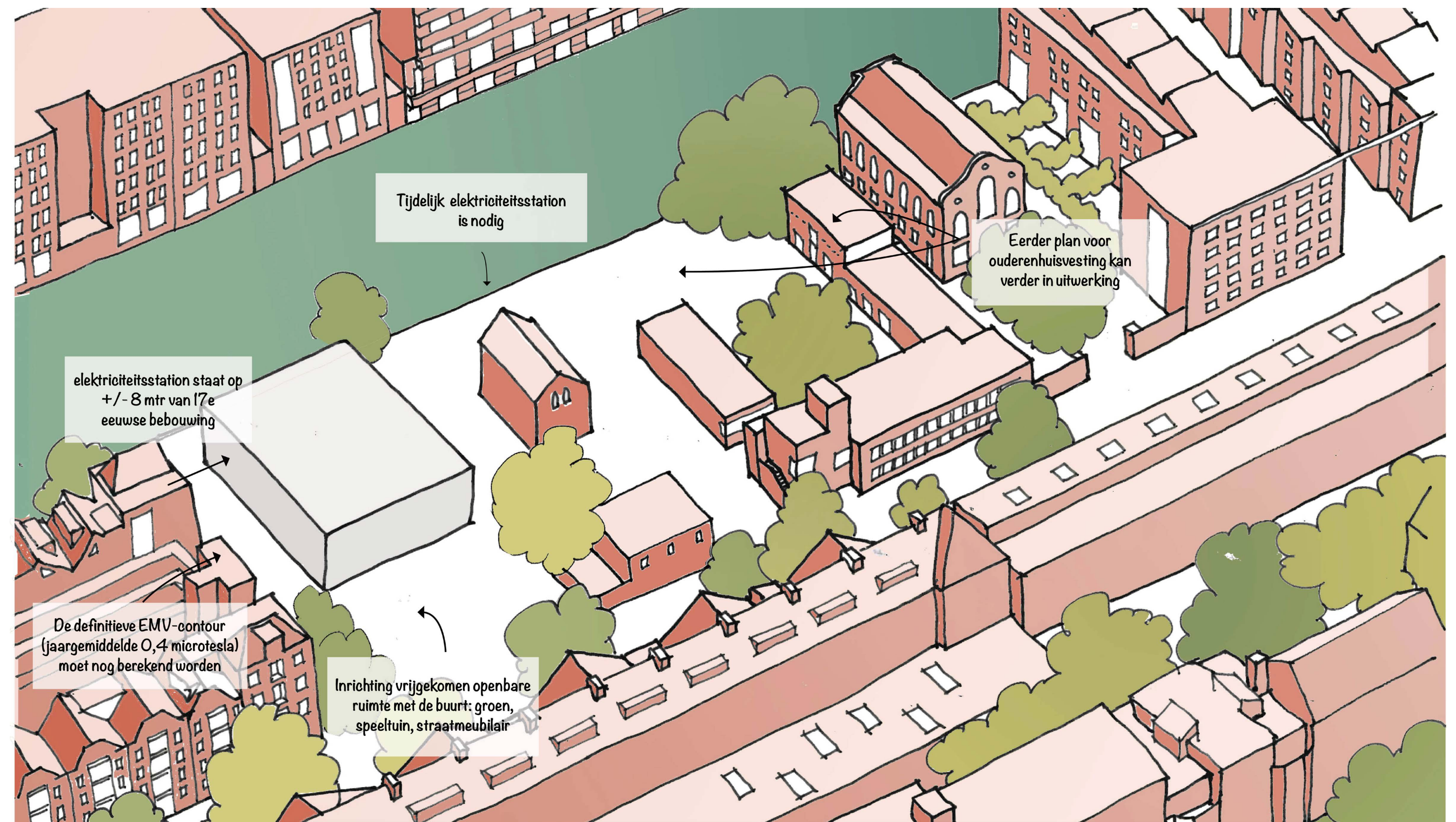
## 2. Site options

### 2.1 What possibilities does Liander see for this site?

We currently see three possibilities, with the last two options requiring a feasibility study.

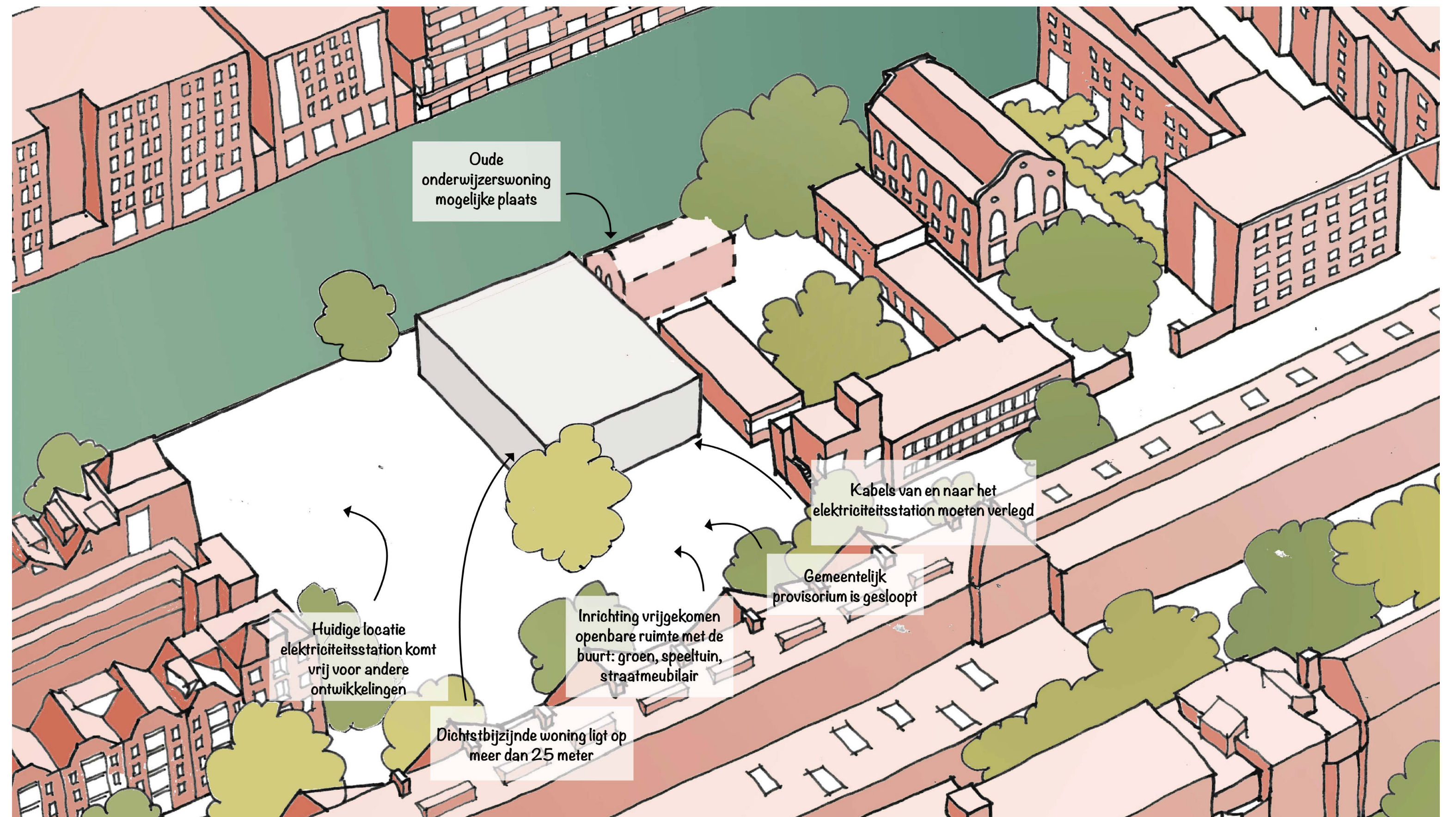
#### 1. Upgraded substation at current site

- Site: same spot as current substation. Smaller in size and therefore a little further from existing buildings than it is now.
- Environmental Plan amendment: no
- Feasibility study: already done
- Construction period: approx. 5 years
- Temporary substation needed: yes
- Environmental permits (building permits) required: yes for temporary and permanent substations



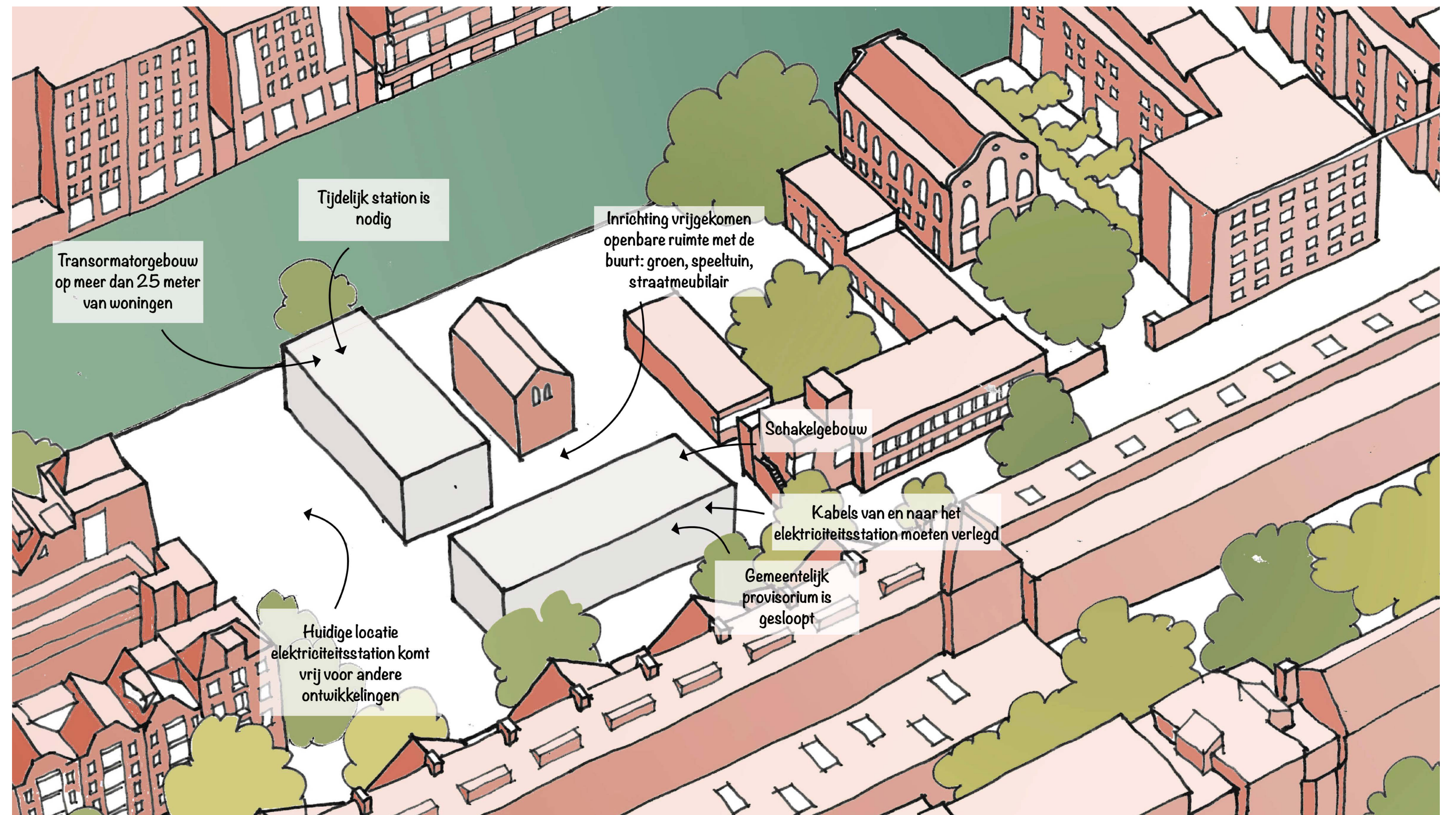
## 2. Upgraded substation at different site

- Site: location of the 'Old Teacher's House'. This must be moved for this purpose.
- Environmental Plan amendment: required
- Feasibility study: yet to be conducted
- Construction period: approx. 3 years
- Temporary substation needed: no
- Environmental permits (building permits) required: yes
- Plan for housing for senior citizens: needs to be amended. Drafting the plan can begin once the site decision has been made.



### 3. Upgraded substation split sites

- Site: transformer building to the left of the 'Old Teacher's House', switch building on the site of the temporary municipal facility.
- Environmental Plan amendment: required
- Feasibility study: yet to be conducted
- Construction period: approx. 4 years
- Temporary substation needed: yes
- Environmental permits (building permits) required: yes
- Plan for housing for senior citizens: needs to be amended. Drafting the plan can begin once the site decision has been made.





## 3. About the construction work

### 3.1 How will Liander deal with disruption caused by construction?

Construction of an electricity substation causes disruption. It involves oversize transportation and may involve noise pollution. At the same time, Liander is making every effort to minimise disruption. To that end, in Uilenburg we will work in the following way:

1. We will give you advance insight into the schedule. We work in your living environment, so it is important that you know what is happening when. We will make every effort to avoid any unpleasant surprises for you. We will inform you in a timely manner through the construction app, through environmental management and through already available information channels.
2. We will contact each other when things go differently than we thought or hoped. Still unpleasantly surprised? Experiencing disruption? We think it's important that we hear that. Not (only) through the construction app or by email, but particularly in person, so we can look for a solution together. We will set up an open information clinic at the site.
3. Your safety and the safety of our people is paramount. We are building in the busy city-centre area, and are aware that transport movements with oversize loads pose a risk. We always deploy traffic controllers during these movements and will give timely notice of this transport.
4. We combine work: when we open up a street to access or lay cables, we notify our sewer, gas and water main colleagues. This allows work to be carried out simultaneously.

### 3.2 How do we prevent construction damage?

Thorough preparation:

- We examine building foundations and surrounding groundwater levels, among other things.
- Homes close to the construction site are surveyed by a specialised agency. The findings are recorded in a baseline-measurement report and shared with stakeholders.
- Based on the findings, we choose the appropriate methodology for the work. We do this together with our specialised partners and building and housing supervision specialists.

During implementation:

- We monitor the condition of surrounding buildings through periodic inspections.
- We monitor the vibrations caused by the work and transport movements on a daily basis.

Should damage occur to surrounding homes during the construction period, it is important to report this to Liander and obtain insurance coverage. In that case, the baseline measurement and periodic measurements are important documents for consultation purposes. Typically, the experts from your insurance company will consult with the experts from Liander's insurance company.

# Hoe ziet het vervolg eruit?

## 3.3 What does the decision-making process look like?

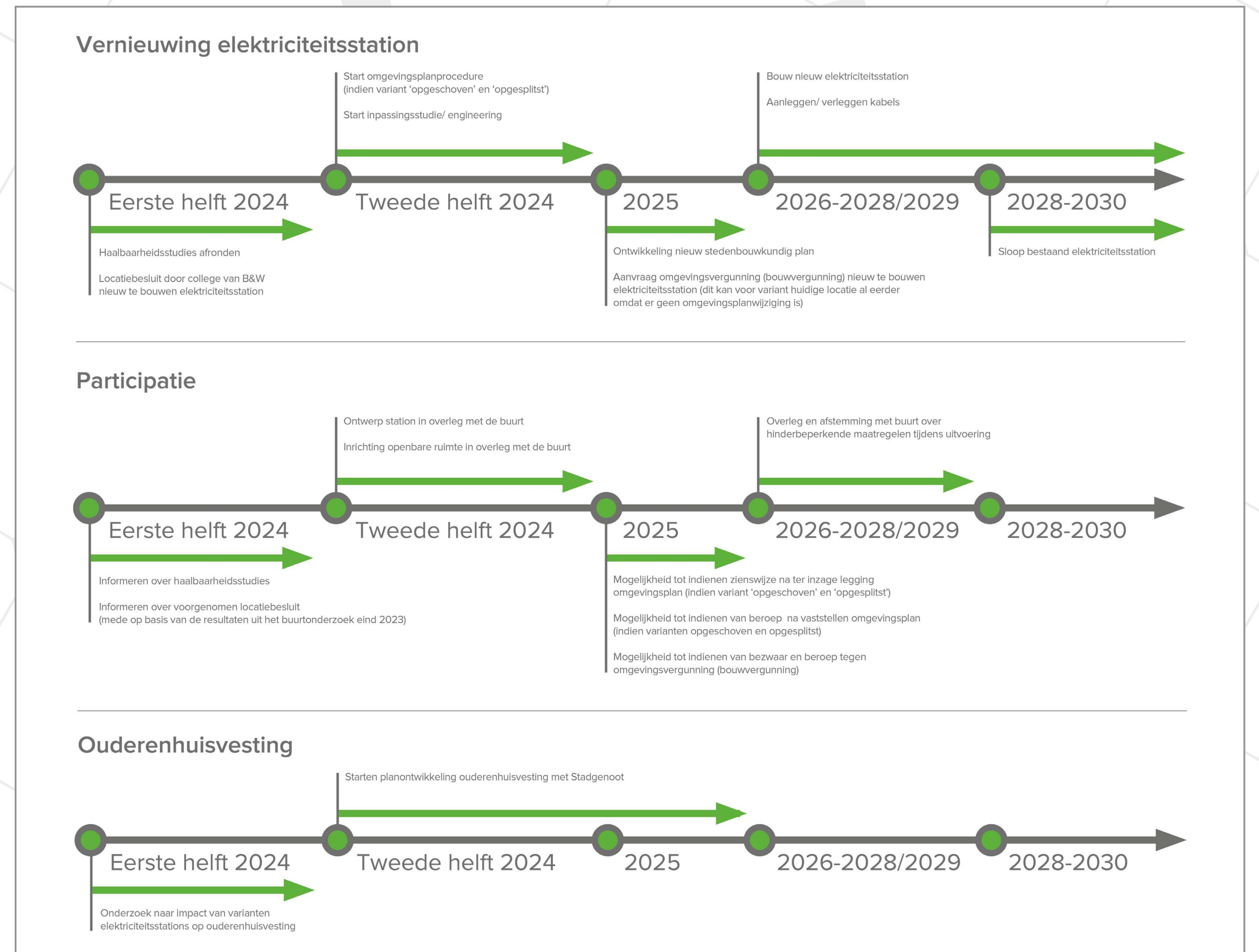
Liander and the Municipality of Amsterdam are now conducting a feasibility study for the 'different site' and 'split sites' options. This feasibility study will provide answers to the questions:

- What about electromagnetic fields and noise in these options?
- What technology do these options require?
- Do these options fit within the zoning plan?
- How do local residents experience these options? (We use for instance the reports from Bureau Bewonerszaken for this purpose.)
- What are the costs of these options?

The project team will work out these aspects for all three options and, based on the results, recommend one of the options to the Municipal Executive. The Municipal Executive of the municipality of Amsterdam independently decides on the site based on this information.

## 3.4 Design of forecourt and building

The Bureau Bewonerszaken report contains initial comments from local residents about the design of the forecourt and building (or buildings). Once a decision has been made on the option/site, the design process can be determined in more detail. At that point, we will ask who is interested in sharing their thoughts on the design.



\* Deze planning is onder voorbehoud van wijzigingen.