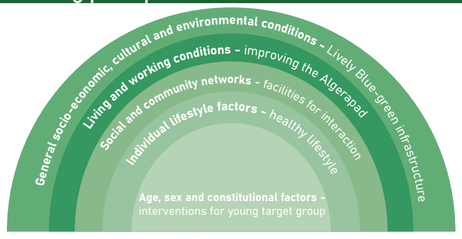
Algeragracht

A green-blue health corridor for the heart of Almere

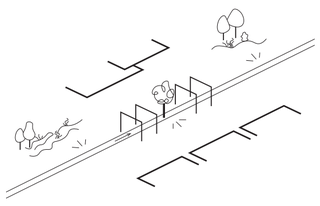
Lisanne Corpel • Sába Schramkó • Dante Föllmi • Nick van der Lee

Experiencing Algeragracht: a sporty walk through the active pergola

Guiding principles



The impact cascade of Algerapad as a health carrier



Open and close spatial qualities instead of no man's land

Recreational waterway connection in the network

Almere is the modern garden city (Bomenkader, 2017) born from contours of green and water (Meerjarenperspectief, 2020), and Almeerders are proud of their city's green identity (Uitvoeringsagenda ecologie 2020-2024). Blue-green networks bring a variety of characteristic landscape typologies into the city (Visie Ecologie, 2020), inviting ecological richness and spatial diversity. Even though nature is always close in Almere, the experience of green for residents is limited. The challenge is to build on existing green-blue qualities and stimulate a healthy lifestyle fulfilling Almere's potential for excellent liveability.

The Algerapad is an important pedestrian and cycling route that connects Hannie Schaftpark and Beatrixpark via a living and working environment. Almere's Ecological Vision (2020) designates it as a green-blue carrier. As a vital connector, it has the potential to become a precedent for realizing the 'landgoed Almere' model (Meerjarenperspectief, 2020). Despite its qualities and central location, the Algerapad is experienced as an unattractive no-mans-land. The residential densification of the area with young adults moving in creates the opportunity to transform it into a green escape. The Algeragracht project reimagines the Algerapad as a climate-resilient health corridor that stimulates active recreation in the heart of Almere.

The climate-adaptive design is supported by stress tests on heat stress and extreme rainfall. The heat stress analysis shows the Physiological Equivalent Temperature (PET) between 12:00 -18:00 during a warm summer day in 2050, as indicated by the KNMI 'Warm High value' (WH) scenario. The extreme rainfall analysis indicates water depth for a 140 mm/2-hour event, happening every 1000 years with the current climate (KEA, 2022). The heat analysis shows that the existing green infrastructure is insufficient in creating a cool corridor and multiple locations along the Algerapad suffer from extreme heat stress. Regarding heavy rainfall, also multiple locations experience a risk of flood by >30 cm water depth. These findings are combined with a user network and function analysis, that highlights important slow traffic routes, ecological corridors and areas that serve a particular public purpose. The analysis shows that the existing water and green can serve as a foundation for health, and climate resilience while strengthening the identity of Almere.

The Algeragracht design proposes to connect two existing waterways through a new kayaking route that invites Almeerders to enjoy water sports and experience Almere by water. The new canal extends the recreational water network and serves as a key element of a new ecological corridor (kanoroutes.nl, Ecological Vision, 2020; Alterra, 2014) and as an archetypal element for mental wellbeing (Floriade, 2022). The design also complements existing green qualities with an additional row of trees along the cycle path, and trees planted on Mandelaplein for heat stress reduction and biodiversity. With this intervention, a new green-blue health corridor is created strengthening Almere city as an ecosystem for people and nature alike (Onderzoek gestart naar het verwilderen van steden, 2021). To develop a spatially attractive area and combat the feeling of no man's land the design builds on an open-closed principle, where the openness of city parks gradually transitions to the enclosure of an active pergola housing functions for climate adaptation, recreation, sports, biodiversity, education and meet-up. Its modular nature enables it to serve as a test ground and stepping stone that can later be developed into a full-scale corridor.

Strategic design interventions along the Algeragracht

Nature-friendly canal banks form a soft transition from water to land that give unique biodiversity opportunities. Different species give different types of canal banks. A flowery mix of herbal vegetation forms an attractive alternative to common reeds. Alternatively, vegetation that combines reeds and sedges provides stability to erosion-prone canal banks.

Planter boxes (1 m3) are places that are suitable for urban gardening and school-gardening. The Planter boxes that on the Regentesseweg/ Landvoogdpad are enclosed by hedges provide a good place for urban gardening. They simultaneously foster the ecological corridor, local food production and a healthy lifestyle by sharing knowledge about growing herbs and vegetables.

With open space for rainwater storage, the bicycle path can store 900 litres / m2 which then infiltrates. Inundation in the surrounding area can be limited. Since the Algerapad is undergoing changes anyway, this is a nice opportunity to install buffer capacity.

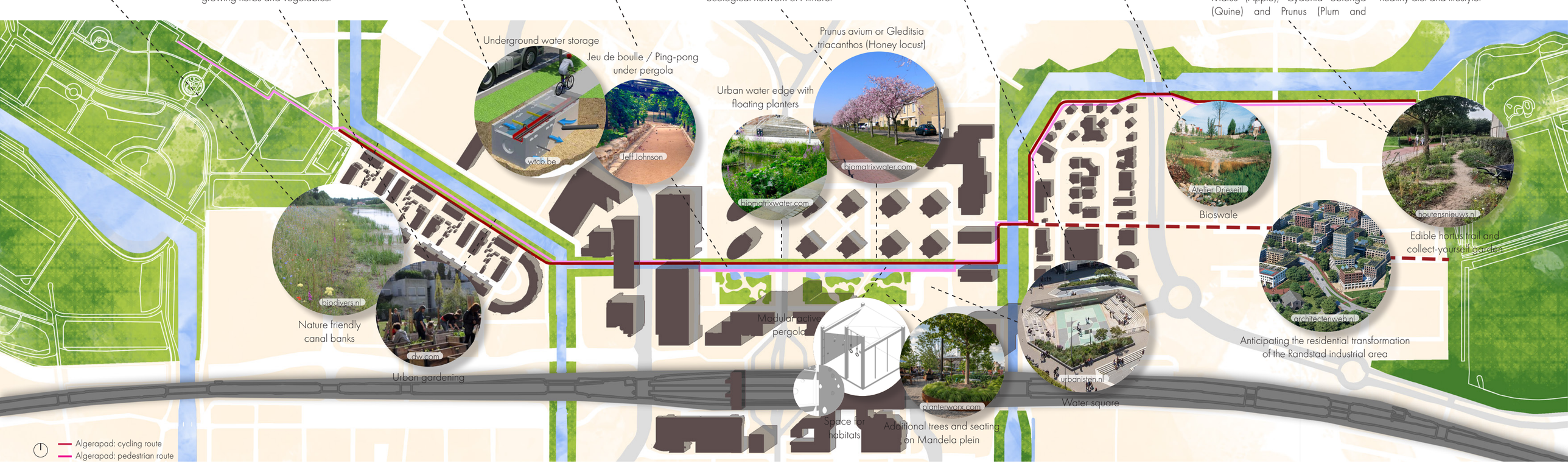
This active pergola is a combination of multiple functions related to health, sports, biodiversity, providing a cool spot and a meeting point for different age-groups. The pergola is placed on the areas with the highest heat stress. Benches are placed in the shade of trees and climbing vegetation in around the Pergola. It also provides habitat and nesting opportunities.

Indigenous trees with high heat stress reduction potential, such as Prunus avium (Cherry) or Gleditsia triacanthos (Honey locust) are planted along the Algergracht. They provide additional shade for the cycling path suffering from extreme heat stress during the summer months. The trees also provide habitats for insects and birds, and complement the overall ecological network of Almere.

A water square stores rainwater during extreme rain events while it provides space for leisure and sports during the dry months. For example, during an extreme precipitation event the Rotterdam Waterplein on Benthemplein (Rotterdam.nl) can store over 1.000 litres of water / m^2.

A bioswale is a channel that conveys stormwater while removing pollution and recharging groundwater. Bioswales typically have special vegetation. Bioswales next to the cycling tunnels can store stormwater runoff, while also recharging groundwater, provide special biodiversity and prevent flooding in the tunnels.

The edible hortus trail, including herbs, indigenous plants and trees, shows educational descriptions and culinary suggestions. Plants such as Lavendula (Lavender), Mentha aquatic (Water mint), Achillea millefolium (Yarrow), Anthriscus sylvestris (cow Parsley), Origanum vulgare (Oregano), accompanied by tree species such as: Mespilus germanica (Medlar), Malus (Apple), Cydonia oblonga (Quine) and Prunus (Plum and Cherry) can be grown on the trail. The trail benefits the ecological corridor function of the Algerapad in the whole ecological network of Almere. This in turn enhances biodiversity and makes it an attractive walking route. Simultaneously, it provides knowledge about biodiversity for residents and children for the nearby school. It thereby also gives insights in healthy diet and lifestyle.



Conclusions driving the strategic design solutions

Almere's Ecological Vision (2020) shows the Algerapad as a vital part of the city's ecological network. To fulfil this vision, blue and green infrastructure needs to be strengthened.

The walkability around the Algerapad can be improved, especially towards the important functional areas, such as the educational institutions to the north. At the same time the existing cycle path is a crucial connector and is kept at its current location.

This existing route already runs along the green-blue network. It provides a good alternative for cycling and walking in a nicer environment than the Randstad industrial area to the south. Therefore the design proposes Algeragracht to run along the existing structure and anticipate the transformation of the Randstad area.

The Mandelaplein and the Landdrostdreef are inundated during extreme precipitation events. This hinders both traffic and commuters, limiting access to the train station. Thus, more infiltration or water storage is needed.

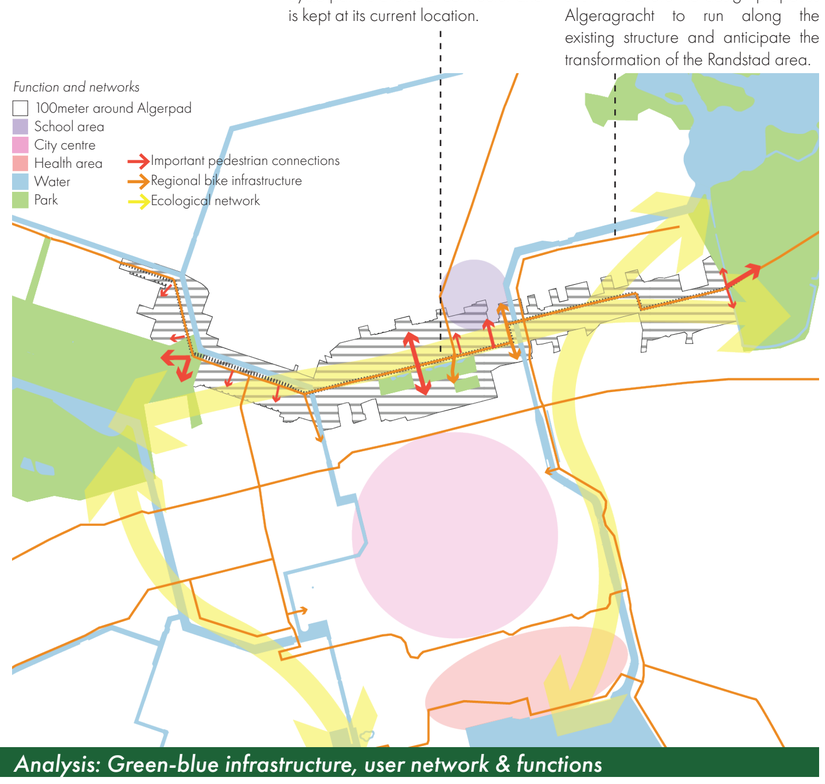
The street in front of Het Baken Stadcollege can be inundated with over 30 cm water during extreme precipitation, causing accessibility issues for students and staff. The rainwater might also enter the school from the south, causing damage to the building. Therefore, the limited amount of space asks for an approach where we can infiltrate the water better or can diverge the water elsewhere in the area.

The two biking tunnels under the Randstaddreef collect a lot of rainwater during extreme precipitation. This blocks the use of the Algerapad. A better water management plan is required to prevent water from entering these tunnels during extreme events, by for example diverting the water into a wadi.

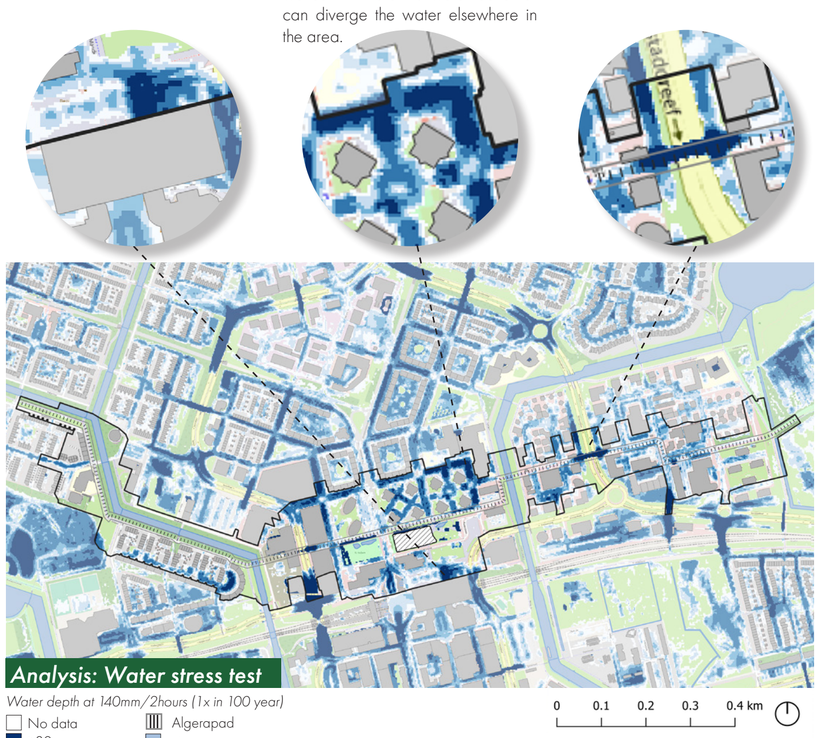
The Regentesseweg section of the Algerapad suffers from extreme heat stress (46 – 51 °C PET) and the nearby buildings have a limited access to cool spots (>300 m). Given that the Algerapad is an important cycling route for the city network this area needs climate adaptation measures, such as a fruit orchard that creates a cool route while providing a green escape for body and mind.

The Spoordreef section of Algerapad is the most vulnerable spot along the Algerapad with extreme heat stress levels (46 – 51 °C PET). This area is already being redeveloped for the Wisselweg project and therefore receives less attention in the Algeragracht proposal. However, it is still recommended to pay attention to this issue in the Wisselweg project.

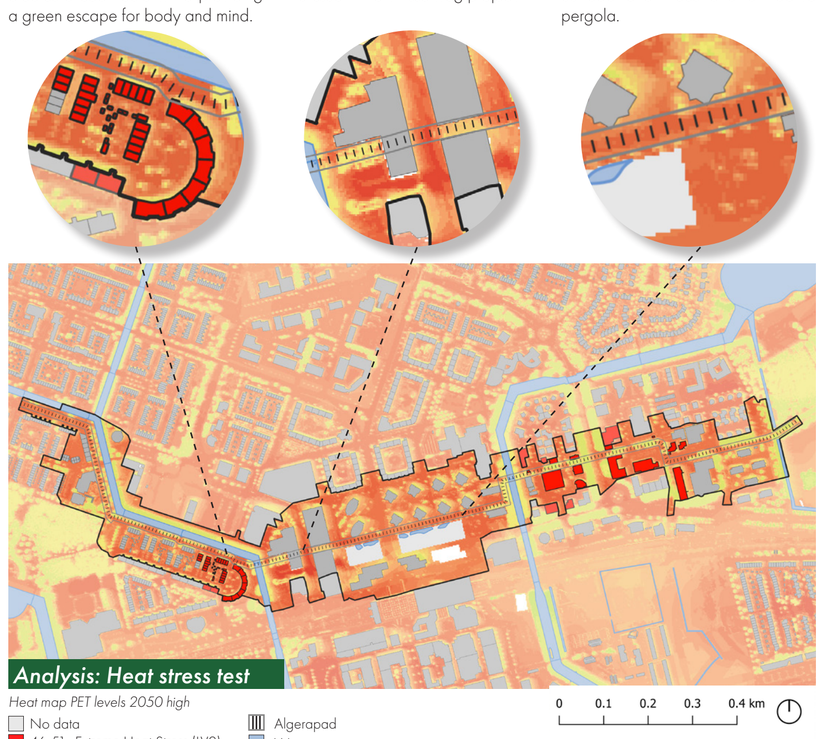
The Mandelaplein section of Algerapad also suffers from extreme heat stress (46 – 51 °C PET). As a vital biking route, pedestrian area close to the station and connection to the nearby school with children who are especially vulnerable to heat stress (i.e. Baken Stadcollege), it requires adaptation measures, such as additional trees and an active pergola.



Analysis: Green-blue infrastructure, user network & functions



Analysis: Water stress test



Analysis: Heat stress test

Alterra, Wageningen, 2014
Cecil Konijnendijk, 3-30-300 regel
Floriade 2022 Masterclass 3: Designing Mentally Healthy Green Cities
GGD Flevoland 2021, Gezondheidsmonitor
Gemeente Almere 2020, Almere: Stad met Toekomst
Gemeente Almere 2017, Bomenkader
Gemeente Almere 2020 Meerjaarenperspectief
Gemeente Almere 2020-2024, Uitvoeringsagenda ecologie
Gemeente Almere 2020, Visie Ecologie
Klimaateffectatlas 2022, Hittekaart Gevoelstemperatuur
Klimaateffectatlas 2022, Waterdiepte bij hevige bui
Onderzoek gestart naar het verwilderen van steden, Aeres Hogeschool, 2021
www.kanoroutes.nl

Amsterdam University of Applied Sciences · AERES HOGESCHOOL · Gemeente Almere · Almere 2.0 · EXPO 2022 FLORIADE AMSTERDAM - ALMERE NL · Bureau International des Expositions