

Primary and secondary school gardens

FC Piraeus

Type of NBS intervention

NBS 3/NBS 8 Didactic gardens in schools, including: gardens with aromatic plants, pollinator friendly plants, vegetable gardens, orchard gardens with fruit trees.

Description of the planned interventions

Transform the existing green areas along the fenced border of the schoolyard: increasing natural shaded areas (planting new tall vegetation/trees) and the number of flowering plants. Use the existing large open paved areas to include new green spaces both by transforming pervious areas in green spaces and adding vegetation in container: raised box vegetable and aromatic gardens for educational purposes.



NBS3



NBS8

Project indicative: P3.2+8.2

Project type: simple investment

Project starting point: 0-5 y

Project ending point: 0-5 y

Linkages: P3.1+8.1

Estimated costs: between 10-50k per school depending on the extend of the planned interventions

Vision



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Scenarios

Do-it-all (best-case)

Connect and integrate: Deploy a seamless landscape design blending new planted areas with the existing valuable vegetation. The objective is to enhance the ecologic benefits of the existing areas, thus adding new autochthone and well-adapted vegetation.

Extend and protect: Expand the current green spaces and shaded areas. Increase the planting of shade-giving trees and shrubs around the perimeter, acting as protective "green curtains." Utilize pedestrian paths surrounding the schools to extend the planted areas and repurpose some parking spaces as parklets, inviting spaces for the community and children. Consider incorporating green roofs: (1) extensive green roofs or (2) green roofs for gardening (if feasible).

Diversify and educate: Enhance the diversity of green spaces by incorporating designated areas for educational purposes among other abundant pollinator-friendly areas. Foster a thriving habitat for pollinators and birds by including nesting and shelter areas, such as "pollinator hotels."



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Do something meaningful

Transform the existing green areas near the fences by expanding the natural shaded areas through the addition of tall vegetation, trees and dense shrubs adapted to the Mediterranean climate. Increase the number of flowering plants to attract pollinators. Large paved open areas in the schoolyards represents priority areas to accommodate new greenery and shade.



Source:
<https://www.greenschoolyards.org/raised-beds>

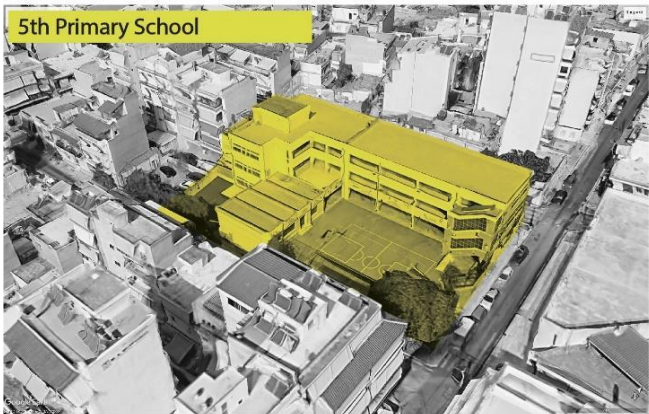
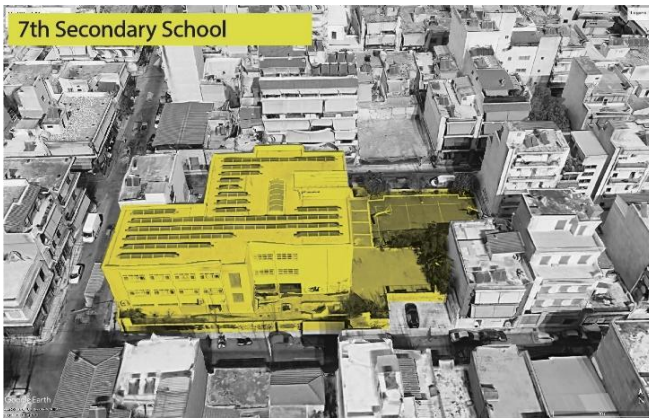
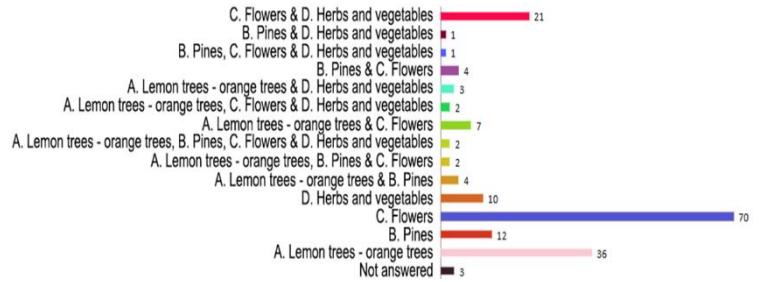
Study area

The study area comprises the 1km Marias Kiouri Road, together with 4 educational institutions in the surrounding urban tissue, which is composed of mixed-residential functions and to a lesser extent of industrial functions. The area is well served by public transport (bus stations).

The intervention sites include four primary and one secondary school as part of the defined study area: 5th Primary School (Antipliarchou Pangioti Vlachakou 99), 7th Secondary School (Chormovitou 195) and 9th and 11th Primary Schools (Psaron 84 and Thessalonikis 71 -near Marias Kiouri Street)

5th Primary School: ~ 1470 sqm plot, ~ 700 sqm (courtyard) out of which approximately 60 sqm of existing green spaces
7th Secondary School: ~ 1420 sqm plot, ~ 720 sqm (courtyard) out of which approximately 70sqm of existing green spaces
9th and 11th Primary Schools: ~ 6650 sqm plot, ~ 4150sqm (courtyard) out of which 1100 sqm of existing green spaces.

Question 2: What plants do you want to see in the garden?



Local planning frameworks

In Greece, maintenance of schoolyards is the responsibility of municipalities, in the URA the Municipality of Piraeus. In addition, the school director together with students and parents assist with volunteer work.

Several local planning documents are encouraging these types of interventions such as:

- Regional level - Regulatory Plan "Athens-Attica 2021" (2011) highlights (1) Environmental protection and a set of environmental policy directions and (2) Restructuring of the productive fabric (incl. agricultural production)
- Local level - Piraeus Blue Growth Strategy 2018-2024 - contains measures on Integrated Spatial Planning and Interventions for urban revitalization.
- Piraeus Strategic Plan mentions the (1) implementation of environmental, traffic and social interventions for the revival of deprived urban areas & (2) optimization of the permeability of the urban areas through upgrading motorways and establishing functional connections between the city and the passenger port and the cruise ship areas. Piraeus Masterplan (2014) - Proposed 3 pedestrian roads in connection to the intervention area: Gkoura, Thessalonikis, Olinthou.

Challenges of the site

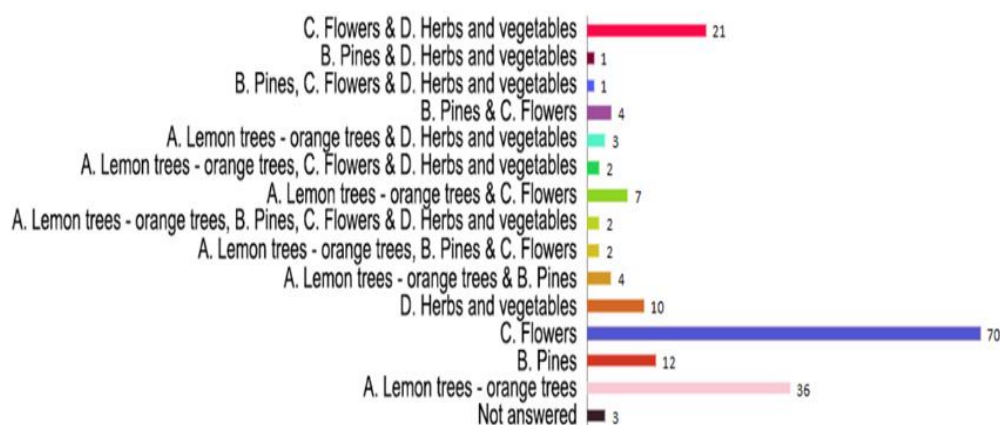
P3.2+8.2

The schoolyards suffer from small green areas, low level of accessibility of existing green spaces (fences), high percentage of non-permeable surfaces in the school courtyards and within the public perimeter spaces, low biodiversity on existing species, fragmented vegetation, lack of integrated planning in relation to vicinities to e.g. public spaces/housing areas/facilities), vandalism. The areas in the immediate vicinity surrounding the schools are mostly paved areas: small available pedestrian space, used in many cases as parking spots.

The 5th Primary school and the 7th Secondary School are in most dense urban fabric, surrounded by tall buildings that lack open spaces (schoolyards are valuable open spaces in the urban tissue). Both schools have similar courtyard surface area, including a basketball court.

The 9th and 11th Primary Schools bordering MKR are sharing the same plot and a common yard with 2 basketball terrains, being also partially connected with the pedestrian area of MKR. The area that can be used by planting within the school plots is mainly located around the fences that surrounds their plots. (see Final Urban Plan map, D2.9)

Question 2: What plants do you want to see in the garden?



Students questionnaires clearly highlighted their preference for flowering plants, fruit trees and vegetables.

NBS implementations will address this to satisfy pupils' needs.

Answers of students from the 9th and 11th Primary school to a specifically designed questionnaire in collaboration with teachers.

Operational objectives

- Increase the attractiveness and biodiversity of green spaces by transforming 20% of pervious areas in green spaces. 30% of the courtyard surfaces will house raised boxes with vegetables and aromatic plants. Planting 600sqm of pollinator-friendly areas and fruit trees.
- Counter climate change and enhance protection and resilience in the Primary and Secondary School areas by establishing additional shaded areas and incorporating locally adapted perimeter trees alongside high density shrubs.
- Foster participatory and educational gardening initiatives by engaging a minimum of 50 students and teachers in planting activities at each school.
- 15 new shaded areas.
- 600sqm of pollinator-friendly areas planted in total with mix of flowers.
- 10 areas for nesting and shelter for pollinators („hotels”) in each school.
- 20% of the courtyards transformed from non-pervious surfaces into planted areas.
- 30% of the courtyard surfaces will contain raised boxes (at least 5 raised boxes/school) with vegetables and aromatic plants.
- 10 fruit trees planted per school-5th Primary School and 7th Secondary School
- 20 fruit trees planted per school- 4th, 9th and 11th Primary Schools
- 1 green roof realized in each school.
- 1 vertical green wall at the 11th Primary School

Key considerations

Multiple institutions/actors, such as landscapers and NGOs will engage in discussions and negotiations. Students and teachers will participate in the co-design process and key co-implementation stages, ensuring long-term project sustainability and commitment to specific maintenance tasks.

The fruitful co-design process will continue beyond the proGReg project with student involvement to address demands. This will create a lasting community centred around NBS 3 and NBS 8.

Partners

Beneficiaries: School (directorate) / Municipality

Additional Investors / Shareholders: Interventions are not considered expensive – sponsors can be involved to support the costs partially

Users: Residents, students, teachers, elderly citizens, parents, disabled students

Planting activities during the 2nd participatory event at the 7th primary school



The design proposal of the proGReg Workshop with the 9th and the 11th Primary school (3rd participatory event).



Design requirements

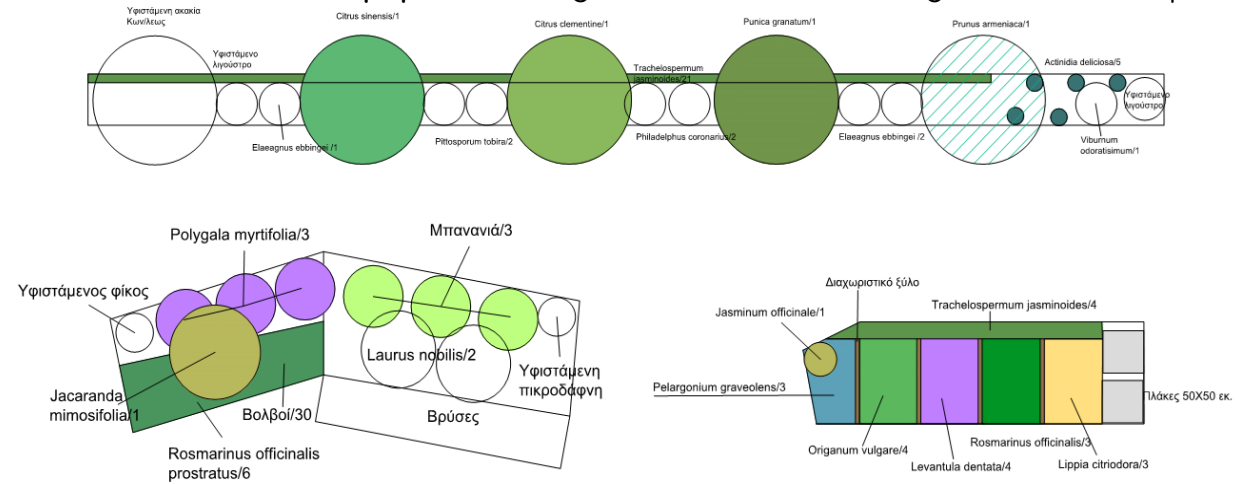
Accessibility: Enhance students' access to green spaces and gardening activities through the provision of raised beds containing vegetables and aromatic plants.

Landscaping: Ensure appropriate plant selection by combining compatible tree, shrub, grasses and flowers species. Plan the placement of new vegetation cohesively, considering shading requirements (for existing open spaces), existing species, fence boundaries, basketball courts, and overall spatial layout. Optimize space while allowing flexibility in raised bed arrangements for vegetables and aromatic plants. Incorporate flowering plants to attract butterflies and fruit-bearing shrubs to attract birds whenever possible.

Safety: Only introduce trees, vegetables or aromatic plants that are safe for students.

Sustainability/maintenance: Utilize sustainable materials and planting techniques, promoting vegetation maintenance without the use of herbicides where feasible.

Urban furniture and equipment: Integrate additional seating amenities in open areas



The co-design proposal of the 5th secondary school in collaboration with the parents.