Growing Together:
A Community Food Forest for Stormwater Management at Andrew Hamilton School

With a lack of green space, access to fresh and healthy foods, and stormwater management systems, Andrew Hamilton School is in need of sustainable and food-producing green stormwater infrastructure (GSI) that would benefit both the students and the community of West Philadelphia. Our design will lower the school's stormwater fee, mitigate flooding in the community, alleviate the urban heat island effect, and provide access to fresh healthy food for students and the surrounding community.
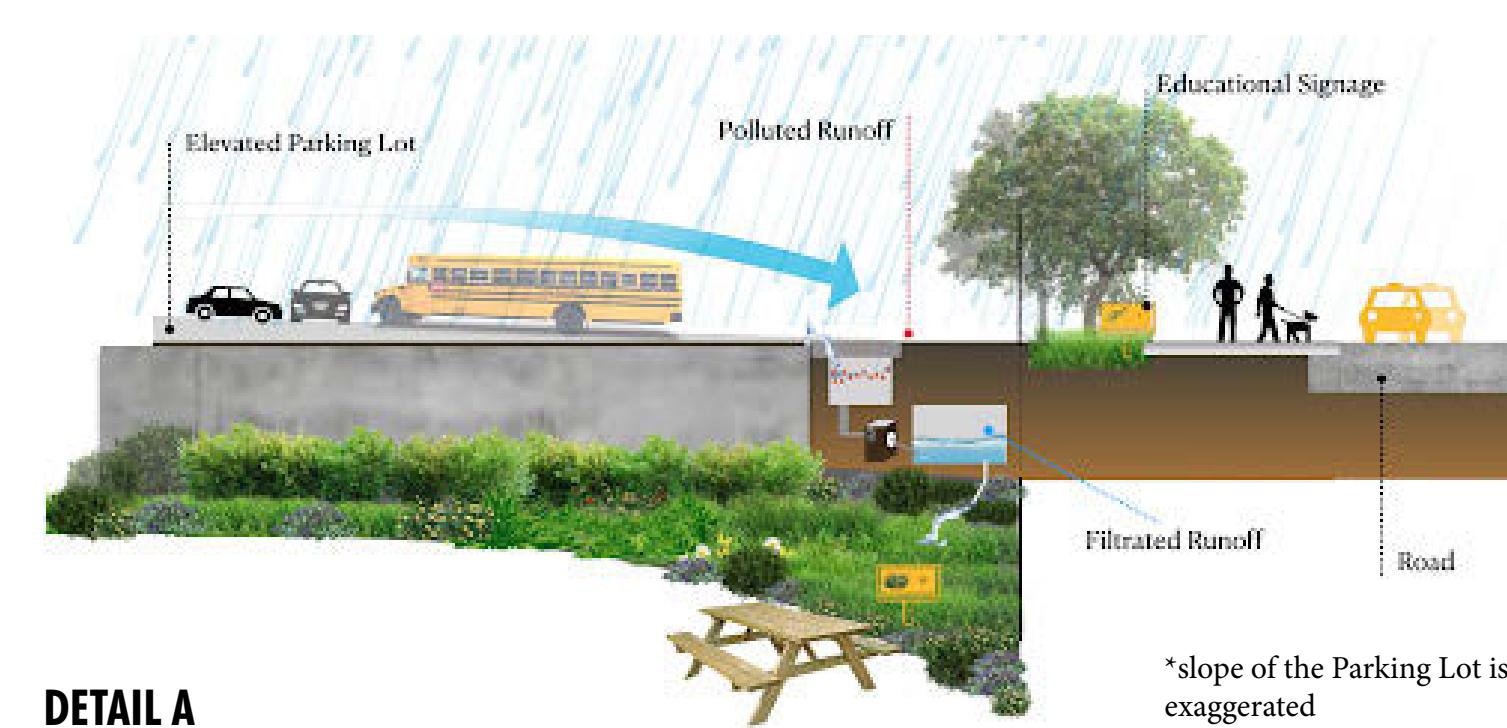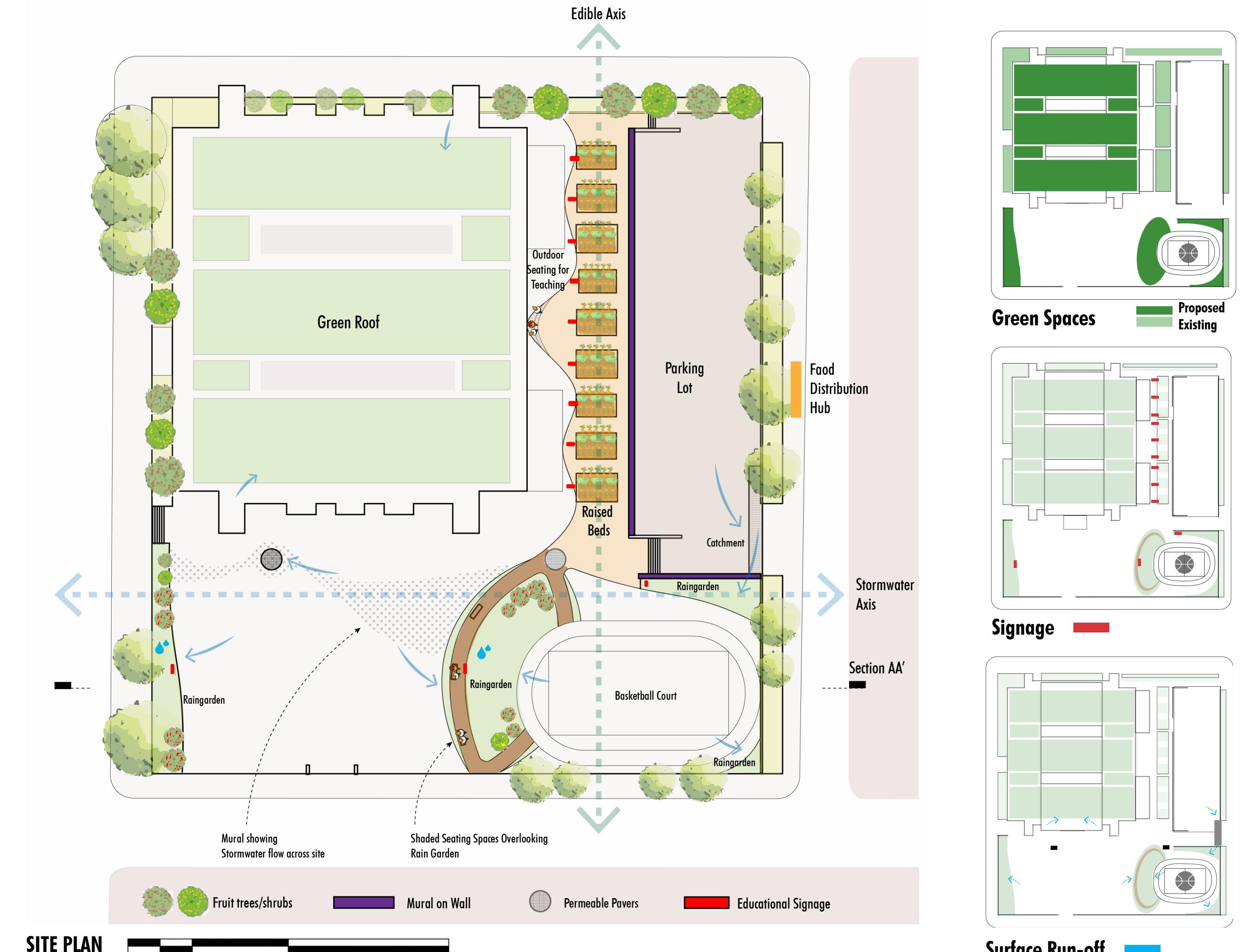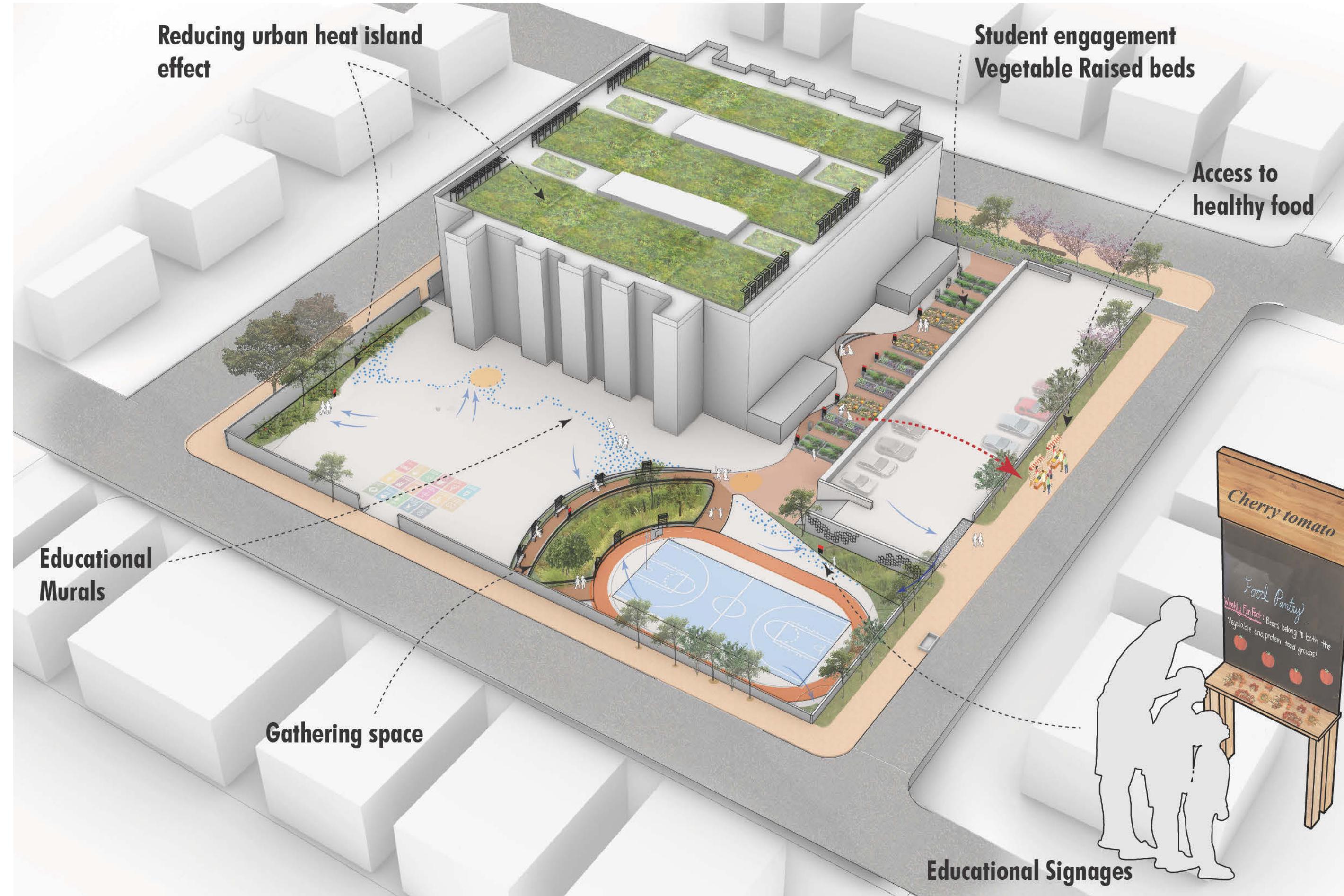
We propose a plan that will incorporate a green roof, rain gardens, raised beds, a food forest, and permeable pavers. To improve students' engagement with GSI, our project will also incorporate educational signage, the development and implementation of both hands-on watershed-focused and nutrition-oriented curricula, and a mural created by the school's students depicting the role of water in urban sustainability and resilience.

GOALS

1. Improved Water Quality
2. Resilience and Adaptation
3. Community Gathering Space
4. Equitable Access to Healthy Produce
5. Environmental Justice
6. Student Engagement
7. STEM Education

The school had to pay **$13,000** every year in stormwater fees. After redesigning, the school will save **$10,560**/year

Total Investment: **$120,166**
Net Present Value: **$131, 698**
Investment Return: **8.798 %**

Reducing urban heat island effect

Student engagement Vegetable Raised beds

Access to healthy food

Cherry tomato

Educational Murals

Gathering space

Educational Signages

SITE PLAN

Edible Axis

Green Roof

Outdoor Seating for Teaching

Raised Beds

Parking Lot

Food Distribution Hub

Catchment

Raingarden

Stormwater Axis

Section AA'

Raingarden

Raingarden

Basketball Court

Raingarden

Mural showing Stormwater flow across site

Shaded Seating Spaces Overlooking Rain Garden

Fruit trees/shrubs | Mural on Wall | Permeable Pavers | Educational Signage

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Green Spaces — Proposed / Existing

Signage

Surface Run-off

SECTION AA'

EXTENSIVE GREEN ROOF

DETAIL A

ROAD | RAINGARDEN | PERMEABLE PAVER | RAINGARDEN | RAISED BEDS | RAINGARDEN | FOOD DISTRIBUTION HUB

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Species Selection for Rain Gardens
Morus Ruban (red Mulberry) | American persimmon | Highbush Blueberry (Vaccinium) | Serviceberry (Amelanchier)
Pear | Paw-Paw | Blue Grass | Milkweed
Trees | Shrubs | Flowers | Grass

Species Selection for Raised Beds
Cherry Tomatoes | Lettuce | Potatoes
Red Pearl Onions | Strawberry | Squash

Reduction in Overall Impervious Area: **20,020 sq. ft**
Reduction in Directly connected impervious area: **12,455 sq. ft**
Percentage increase in CO2 Sequestered (lbs CO2/yr): **873%**
Area of Protected/restored native species: **25,675 sq. ft**
Annual Groundwater recharge: **29,339 gallons**
Roof Area Shaded by Vegetation: **15, 500 sq ft.**

DETAIL A

Elevated Parking Lot | Polluted Runoff | Educational Signage

Filtrated Runoff | Road

*slope of the Parking Lot is exaggerated

RAINGARDEN DETAIL

Shrub & Grasses (Species tolerant of drought and inundation) | High Water Level
Shredded Hardwood Mulch | Compost Amended Soil
Washed Sand Basin | Pea stone