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The Southside Permaculture Park

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Abstract:

With increasing urbanization and industrialization, issues of climate change, urban food security, and social fragmentation are becoming ever more pertinent. The Southside Permaculture Park is designed as a laboratory and educational space where people can experiment with and learn about techniques of regenerative urban agriculture, climate change mitigation, systems thinking, and holistic living. Guided by the ethics and principles of permaculture, elements within the Southside Permaculture Park are designed to be multifunctional and highly integrated, creating a web of **collaborative connections** that lead to greater overall system stability, adaptability, and productivity. We hope to create a model for **urban sustainability and community autonomy** that will empower people to take back control over their means of production in a way that simultaneously provides for their needs and remediates the damages of industrial society on the ecosystems and our psyches. In the Southside Permaculture Park, people can relax, meet new friends, learn new things, and contribute to the revolution that will save us from ourselves.



A **swaled garden bed** in the center of the Southside Permaculture Park. The **wood chip-filled trench** on the south (upslope) **catches water and stores it deep under the raised bed** made with the excavated soil. Rocks dug up from the trench form a retaining wall that provides habitat for beneficial organisms, like spiders, and allows excess water to drain from the garden bed, preventing root rot.

This bed features american filbert (*Corylus americana*) and american persimmon (*Diospyros virginiana*) saplings, that provide human food, as well as food and habitat for birds. These birds then eat caterpillars, protecting the kale. The kale in turn acts as a barrier preventing the grass from encroaching on the bed. Skirret (*Sium sisarum*), another barrier plant, makes edible tubers and multi-headed flowers that attract beneficial insects who protect the tender herbaceous plants like sorrel and arugula. These herbaceous plants act as a groundcover to regulate soil moisture content and prevent erosion.

Introduction/Vision:

Permaculture is a holistic design philosophy, rooted in systems science and based on observations of stable systems (like forests), that informs our decisions to help us create stable and regenerative systems. The ethics and principles, as outlined by permaculture pioneer David Holmgren, are explained in detail on our website, but the main ideas are that **nothing is wasted** (the output of any element is the input of some other element), that **diversity and interconnectivity are valued**, and that if all systems are both subject to **continuous observation** and **iteratively redesigned based on feedback**, over time they will get better.

The processes and techniques developed through permaculture over the last 50 years provide us with powerful tools for combating issues of **climate change**, pollution, disease, **food security**, and loss of **community autonomy** that have increased dramatically over the same period. With these tools in hand, we set to work building a better society.

Imagine: Urban micro-farms pop up in the marginalized green spaces, **rebuilding soils and cleansing the air, water, and earth** of contaminants, all the while providing **fresh, healthy food** to the local population and flipping the carbon deficit of food production from deep red to deep green. Chemistry and biology students working with the College of Health and Medicine run clinical trials on compounds found in species like comfrey and turkey tail mushroom to demonstrate how people can make powerful medicines for treating everything from poison ivy to cancer from things they can grow in their backyard. People come together from all walks of life for a potluck dinner in the park, and suddenly everyone feels a little bit **less alone**, and a little bit **more secure**. Pride in the community grows like a weed as the spirit of permaculture, now visible everywhere you look, reassures us that even if the big farms fail, we will not starve, we will not fall; **we will thrive**. The corporations can't control us now: We are Free.

Results:

So far, efforts surrounding the Southside Permaculture Park have resulted in the creation of **6 large, swaled garden beds and 5 smaller un-swaled, ones**. These beds have been planted with interconnected guilds of plant and fungal **species that symbiotically interact** to increase overall functionality. Although the beds are still very young compared to their designed lifespan, they are already extremely productive, generating pounds of kale, arugula, sorrel, tomatoes, and more each week. As the perennial elements mature, yields will continue to increase.



A bumble bee (*Bombus spp.*) collecting pollen and nectar from Anise Hyssop (*Agastache foeniculum*).

We have also observed a **significant increase in the number of pollinators and predatory insects** present. Efforts like our Chop-n-Drop Living Mulch have produced over 100 pounds of biomass, **converting atmospheric carbon into fertile soils** that improve the plants' growth rate, thus increasing the rate of carbon sequestration in a positive feedback loop. Soil tests to measure organic content and other nutrients are underway but as yet inconclusive.

In addition to the physical gardens, we have produced an **informative website** about the Southside Permaculture Park project including pages about the principles and ethics of permaculture; profiles on each of the species cultivated in the park; tutorials on practices like swale building, composting, etc.; and posts about various practical and theoretical topics relating to the Park. The website is available at <http://southsidepermaculturepark.org/>



An herbal salve made from comfrey, plantain, and beeswax used for treating skin ailments. Full recipe at southsidepermaculturepark.org

Medicines made from plants like comfrey and plantain have demonstrated themselves as extremely effective in treating insect bites and poison ivy as well as increasing the rate of wound recovery.

Over 100 residents from the area have filled out our community consensus form and are overwhelmingly in favor of the Southside Permaculture Park. While working in the park, over a dozen locals have come up to us to express their support for the project and how much more pleasant they perceive the neighborhood to be because of the Park.



Kale, sorrel, and tomatoes harvested from the Southside Permaculture Park.

Implications:

Impacts from this project range from the personal to the global: from improving the daily life of residents who walk past the park to sequestering carbon to mitigate the effects of climate change. Data from soil tests is yet to come, but prior research indicates that projects like these can **sequester up to 40 tons of carbon/hectare/year** (Toensmeier, 2014), while reducing the need for fossil fuel use. Permaculture projects also improve soil quality, allowing for the production of high-quality produce that does not require long-range, fossil-intensive transportation. This **builds community autonomy and resilience**, while also contributing to a global resilience to the effects of climate change that will put tremendous stresses on industrial agriculture, and thus all of society.

Already residents are enjoying the greener aesthetic and feeling better about the community, and **the quality of urban life will only continue to increase** as spaces like the Southside Permaculture Park spread across the city and beyond.

Perhaps the most important impacts are the psychological and sociological impacts. When people see the Southside Permaculture Park they are getting a glimpse at what a better world could look like. A world where your morning stroll provides you with beauty and peace of mind and a basket of fresh, healthy food; where people spend time outdoors playing and conversing with their neighbors; where people are not alone and self-dependent, but gain a sense of belonging and support from the community, human and otherwise. And with that glimpse, **a revolution is set in motion**.



Students enjoying fresh food and community at the first ever Potluck in the Park, hosted by EcoHouse and Green Action Club on September 5th, 2018. Dishes included kale salad, basil hummus, roasted tomatoes with garlic, herbal teas, and more, all made using ingredients grown right here in the Southside Permaculture Park.

Future Work:

Work on the Southside Permaculture Park will continue through the course ES 397, with support from Creative Inquiry, Mountaintop, and the EcoHouse. Multiple structures, such as a community bulletin board and a calisthenic workout arena are currently being reviewed by the Bethlehem Zoning Board.

Partnership programs with Broughal Middle School, Donegan Elementary, local religious organizations, and other local groups are in the process of being established, with the hopes that we can invite such groups for workshops in the park and around the Southside.

Quantitative measurements on soil quality and organic content over the years will continue to be completed to track soil building and remediation progress. Annual inputs and yields will also be tracked. Quantitative medicinal research on compounds from various species in the park will be conducted by future students to back up the anecdotal evidence from this summer with scientific evidence. Additional research on mycoremediation and other fungal matters are also in early stages of planning.