

An Alternative Approach to Post-industrial Rejuvenation in Westport Waterfront, Baltimore

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ABSTRACT: In order to prevent the loss of residents, provide job opportunities, attract people of all economic backgrounds, and make efficient use of land resources, this paper explores how to use alternative methods to create an equitable, sustainable and productive communities that contributes to the well-being of the existing communities by reusing the post-industrial property. Furthermore, this article examines how post-industrial landscapes might be designed to link residents and reanimate communities.

1. INTRODUCTION

With the process of deindustrialization, more and more abandoned post-industrial sites have become a symbol of pollution and despair. Communities in the vicinity of these sites have experienced considerable unemployment, housing decline and a decline in quality of life, while often struggling with high crime rates, poverty and food deserts. However, with the continuous acceleration of urbanization, this has brought huge land demand. Therefore, we need to reuse the abandoned post-industrial sites and rebuild the links between these sites, nearby communities and cities.

After analyzing the impact of post-industrial land on economy, environment and public health, this paper first discusses the redevelopment benefits of post-industrial land. Then, by focusing on a post-industrial site in Westport, Baltimore, which used to be a prosperous industrial site to support the nearby residents, it has declined and has no connection with the nearby communities. This paper explores an alternative approach to redevelop this site and revive communities, which includes urban agriculture that can provide fresh food and job opportunities for the community, as well as education and ecological space that can be visited and experienced by the local communities or school classes.

2. THE INFLUENCES OF POST-INDUSTRIAL SITES

The existence of post-industrial sites has brought about many negative impacts on the quality of surrounding neighborhoods' lives, including the production loss of goods and services, the decline in the value of nearby properties, potential harm to human health, and obstacles to future economic reconstruction [1]. Therefore, this paper investigates the research and theories related to the impact of post-industrial sites on public health and

economy. Then, this paper explores the benefits of post-industrial sites redevelopment for the nearby neighborhoods, especially by demonstrating the benefits of economic improvement and community social health enhancement.

2.1. Post-Industrial Sites' Impact on Environmental and Public Health

Many neighborhoods near the post-industrial sites are struggling with crime, pollution, and public health issues, which have had a negative environmental, social and health impacts on the neighborhood residents.

For example, Ding found that many toxic substances were produced in the process of industrial production, which led to large-scale environmental pollution and harmful effects on human health [1]. In particular, Litt and Tran noted that the incidence rate of cancer or other diseases was higher among residents living near post-industrial areas. They also found that pollution of post-industrial sites perhaps may lead to high rate of neonatal mortality compared to other places [2]. In addition, De Sousa mentioned that these sites may increase homelessness, gangs, and crimes, which could cause ripple effects on the future developments of surrounding neighborhoods [3]. The high crime rate and high housing vacancy are mainly the natural result of these abandoned sites. Since residents feel unsafe in public space, which means they want to stay at home, their social activities are reduced. In this case, they always feel uncomfortable, so anxiety in the community may increase. Watkins also found that the high crime rate would actually worsen the value of property [4].

2.2. Post-Industrial Sites Impact on Economic

As the post-industrial sites also have negative impact on local economy, this is more clear than the impact on the environment and human health. Ding shows that these

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abandoned post-industrial sites can cause the Baltimore City to lose about \$26 million in taxes every year. He also found that these sites created adverse effects on the local economic potential, including loss of investment chances, the decline of economic income, and the lack of services and commodity production [2]. In addition to the aforementioned negative impacts, these sites can also cause enormous losses to the value of nearby properties. Moreover, the decision of the developer whether to redevelop may be affected by these site pollution problems. Commonly, the cost of redevelopment goes up with the increased pollution level, and developers may not be able to obtain economic assistance from insurance companies, the government or other creditors. For example, governments and other creditors are unwilling to increase fiscal spending on abandoned industrial site because they hope to focus first on the sites which with much more potential to develop, and insurance companies are reluctant to guarantee on some non-yielding unattractive assets. Therefore, in most cases, developers are unwilling to redevelop and reuse these sites. Therefore, the complex site conditions and financial problems have had a deleterious impact on the redevelopment of these sites, which means that the negative economic consequences of these sites will always follow the surrounding neighborhoods [2].

2.3. Benefits of Post-Industrial Sites Redevelopment

Many academic studies have investigated how the redevelopment of post-industrial sites can bring ecology, economic and community improvement benefits. From the ecological aspect, EPA study has shown that by transforming these sites into green space, rainwater runoff is reduced by 47% to 63%. It also helps to improve air conditions and reduce polluting gases. Troy and Grove confirmed a positive relationship between the redevelopment of these sites as public green spaces and the sales price of residential properties. Furthermore, Haninger and Timmins found a 5% to 15.2% increase on property prices after the post-industrial sites' revitalization [6]. In addition, an EPA study showed that the financial condition of local governments can gain an additional tax of \$29million to \$97million by reusing these sites. The research of Minnesota Brownfields also shows when \$10,000 to \$13,000 to spend on the redevelopment of post-industrial site, one permanent job will be created. It also found that the reuse of existing infrastructures will help to reduce the cost of redevelopment [7]. Furthermore, the redevelopment of these abandoned sites provides an opportunity to attract new tenants and homebuyers, which can re-energized the seriously decayed communities. Looking into the effects of redevelopment on community safety status, De Sousa investigated the impact of the restoration of these abandoned sites on the crime rate of Mill Ruins Park. This study found that redevelopment reduced the crime rate by 11.3% [8].

3. POST-INDUSTRIAL LANDSCAPES AND WESTPORT NEIGHBORHOODS

Westport Waterfront is a 100-acre post-industrial site; it is located on the east side of Westport neighborhood, which is approximately 265 acres of African-American community and located in the south Baltimore on the Middle Branch of the Patapsco River. Compared with the glorious era of industrial economy, this place now faces several serious problems: lack of contact with neighbors, increased vacancy rate, reduced leisure space and food desert. The loss of job opportunities has led to a large number of abandoned houses and the loss of population. According to Westport Census Data (2010), there are 696 houses in the community, of which 252 are vacant, with a vacancy rate of about 36.3%. The 77% owners of unoccupied houses hope to sell their house; however, due to weak market conditions and deplorable surrounding conditions, it is hard to fetch a good price or sell off houses. Moreover, the population decline and low demand have also turned the whole neighborhood into a food desert, and the residents have limited access to fresh and affordable foods.

Furthermore, this site possessed ideal environmental advantages. There are more than 2,000 feet of coastline along the Westport waterfront including three habitat protection areas: the Upper Middle Branch, the Gwynns Falls and the Lower Middle Branch. The Upper Middle Branch is a historic waterfowl staging and concentration area, it possesses a muddy area which can provide adequate food for birds. The Gwynns Falls is a wildlife corridor, and it builds a connection between the upland forests in the upper Gwynns Falls Watershed and the tidal wetlands and stream in the Upper Middle Branch. The Lower Middle Branch is composed of a tidal stream and wetland. However, the eco-habitat in this site is discontinued and though a traditional bird conservation area located nearby, the site lacks the bird foraging area and tall trees, which cannot attract birds to stay for long time. Moreover, hard and polluted land cannot support the growth of lush plants. However, these situations still provide many redevelopment opportunities for residents to enjoy meaningful educational space and natural experience.

4. THE APPROACHES FOR POST-INDUSTRIAL SITES REDEVELOPMENT

The redevelopment of Westport Waterfront needs to provide thoughtfully-designed spaces that can be used daily, provide employment opportunities and additional economic benefits for the neighborhood, offer educational and leisure spaces for nearby residents and local school students, and reconnect the site with the city.

4.1. Urban Agriculture in Post-Industrial Sites

As mentioned previously, the Westport neighborhood is facing unemployment and a lack of fresh and affordable

food. This is not a new phenomenon. Because of the population reduction caused by the economic recession, making it impossible for low-income African-American communities to access full-scale grocery stores and supermarkets, and to obtain products that are more affordable than those in white communities [10]. Moreover, the residents who lost their jobs are struggling with starvation. In order to create jobs, offer fresh and affordable foods, improve food security, and help to build a healthy diet, it is suggested to apply urban agriculture in this site. Urban agriculture is described as the cultivation, processing and distribution of agricultural products through intensive cultivation of plants and animal husbandry in cities [11]. It not only plays a critical role in promoting public health, including health, nutrition, food security, well-being, and community development [9][10], but also can help with re-employment. According to the SHAP (Self-Help Addiction Rehabilitation) program, a 30-acre urban farm can provide 150 jobs in six months, and offer 2,500 to 3,500 permanent jobs for local residents in ten years [12].

In addition, urban agriculture exists in many forms, such as backyard garden, community garden, urban orchards and for-profit urban farms, which can be applied in different areas of Westport. The backyard gardens are suitable for residents, and residents can grow their own foods and enjoy the planting process. Community gardens are applicable for vacant lots, so the vacant lands can be transformed into education and production space; the profit-making urban farms and urban orchards are proper for the Westport Waterfront, which has a vast territory and flat terrain, and can be widely used for planting. Additionally, the waterfront area is adjacent to Wheelabrator Baltimore, which is a waste-to-energy incinerator that can provide sufficient and reasonably priced heat for future greenhouses and greenhouses. The harvested agriculture products could be sold on the proposed farmer market at an affordable price, and can solve food desert problem on site. Moreover, the former industrial building can be reused as food hub, where could produce, distribute and sell residual products. It also can provide agricultural training opportunities or cooking classes for nearby unemployment residents and local students.

The function of urban agriculture in post-industrial sites is not just limited to providing fresh food, eliminating food desert, and increasing job opportunities, but also has an impact on community revitalization. It provides growth opportunities for teenagers, engages residents, creates a sense of ownership of the waterfront, and helps communities to reunite.

4.2. Educational and Ecological Spaces

In view of the environmental constraints of Westport waterfront, improving habitat and ecological function is one of the important processes to restore the area. Efforts would be made at this site to restore habitat and rebuild ecological connections through the restoration of forests, grasslands, wetlands and streams. This includes planting native vegetation on streams to reduce erosion, creating forests and grasslands to build ecological corridors,

protecting and restoring wetland functions, and applying best management practices (BMPs) to regulate stormwater runoff. The site restoration project would inject new vitality into the site and provide more opportunities for community members to get in touch with nature.

With the restoration of the ecological environment in this waterfront, it will also appeal to school students and local residents to experience nature and obtain outdoor experience and learning opportunities. Some researchers also found that adults with green spaces can help them to relief stress and anxiety, experience inner peace, and improve health [13]. Study shows that outdoor learning spaces can help children to develop social skills, improve attention and enhance academic performance [14]

The restored waterfront site can offer quiet spaces where visitors would get a more calm and reflective experience. This means that when recreation spaces are combined with greenery view, these spaces would help to provide a relaxed environment for people after work, they can look out over a charming scenery or walk in the woods. In addition, some areas are designed as positive spaces, such as sports field, nature playground and strolling park, allowing residents to exercise, communicate and explore, and also helping to recover from stressful experiences.

There are few green open spaces nearby and around, and there are many schools, which provide an opportunity to create outdoor learning spaces in this waterfront area. These outdoor learning spaces, combined with imperative signage and different learning activities, can attract students, residents and visitors to explore this waterfront. The proposed and restored elements, including forest, meadow, stream, wetlands, BMPs, bird conservation area, pollinator garden, can create spaces for students and local residents to explore, teach, and play. For instance, they can explore how BMPs would work to slow down stormwater runoff; understand the importance of local plants to local rivers; explore the vital role of wild pollinators in nature; or observe the interaction between birds and nature. This exploration journey can also integrate with the site's history. Although the traditional industrial activities are no longer retained in the Westport waterfront, these are still part of this site, and have supported nearby communities. The memory of the site can be reflected in the reuse of abandoned industrial structures and buildings to form different kinds of interactive spaces and facilities, which can allow visitors to explore and understand the cultural history of the industrial site.

In general, the site's restoration and redevelopment provide the nearby residents with an opportunity to embrace nature, have meaningful social interactions with their neighborhood and establish sense of ownership of this waterfront. The reused land could also benefit school kids through the outdoor learning spaces, so as to understand the nature and history of this site.

5. CONCLUSION

The objective of this paper is to explore how to integrate urban agriculture, ecological practice and education space into the post-industrial waterfront, so as to reconnect

residents with the waterfront and revitalize the community. The redevelopment of post-industrial sites cannot ignore the nearby neighborhoods. Therefore, economic, ecological, recreation and educational factors should be taken into account in these places, which could contribute to the rejuvenation and healthy development of communities. The on-site urban agricultural practices can help the unemployed residents get re-employed and supply fresh and affordable food for the residents. Ecological elements and outdoor learning spaces help to improve mental and physical health, offer nature opportunities to those who participate in the exploration of this site, and provide educational opportunities to their users. Therefore, the reuse of post-industrial sites in an integrated framework contributes to the establishment of an equitable and viable community.

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