Transforming Contamination into Community

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This analysis focuses on the Smoky Hollow Park Project in my hometown of Raleigh, North Carolina. The main goal is to increase green infrastructure and public restoration space in the city's downtown, as well as reduce flooding and improve water quality through stream restoration and stormwater management at this spot. To be more specific, this project's objective is to remediate the contaminated soil and groundwater, restore the Pigeon House Branch, and provide public access to recreational amenities. This analysis will look at the economic costs and benefits of the Smoky Hollow Park Project compared to potential alternatives and the baseline of leaving the land underdeveloped.

For more context, this site is located between Capital Boulevard and Peace Street, as shown in Figure 1, which is a prominent area in the state's capital. Figure 2 shows the approved concept plan for the project. This area is classified as a brownfield, meaning it needs immense environmental remediation before the public can use it, as it is contaminated with chlorinated solvents and other harmful pollutants. The project is also located along the Pigeon House Branch. This watershed contains incredibly old stormwater infrastructure, making the area prone to flooding. Adjacent to the area is a mixed-use development with offices, retail, and restaurants. Finally, it is located downtown, where there is a green space deficit since it is a rapidly growing city. The lack of greenspace is not a new concern for the city, especially as it continues to attract new residents from all over the country. Over the years, Raleigh has had a large emphasis on investing in greenspace as the city dropped to 56th in 2024 on the Trust for Public Land's annual ParkScore report and is not known for its abundance of parks and outside areas. Compared to similarly sized cities, Raleigh has less public greenspace per resident.

The project itself is projected to occur from 2017 to 2028, with construction starting in 2026. The project's official budget is expected to be around $13.5 million, though it is also

expected to go over budget. They received initial funding from the 2014 and 2022 City of Raleigh Parks Bond Referendums, along with other grants. There are three different companies hired to complete the project, for concept and design, advanced design and permitting, and construction management. The long timeline for this project shows the complexity of the area and the immense amount of effort required to complete the project. However, despite its length to complete, this project aligns with the city's goals and current investments.

The area is currently a paved lot used as a maintenance facility for the city, but it wasn't always that. Historically, this project was known as the "Devereux Meadow Park Project." According to CBS 17 News, "The name Devereux traces back to John Devereux, Jr.; Devereux was known to be a plantation and slave owner in the 1850s." (Retana, 2024). In 2022, the project was renamed to the 'Smoky Hollow Park Project' referring to the interracial, working class neighborhood of the 1800s who were forced out of their homes in the 1950s. The renaming of this project acknowledges the area's history and people who came before it. In the past, this site was a rail yard and a baseball stadium, leaving behind many pollutants over the years. According to WRAL News, "Built in 1938 and closed in the early 70s, decades of overgrowth have left the abandoned baseball stadium's remnants nearly unrecognizable." (Leah, 2021). Knowing its history, this new project allows for more historical education and preservation. This park could symbolize Raleigh's industrial past, and the families that lived there. They could incorporate educational signs, historic markers, and art to share the history. The City of Raleigh currently does a lot of work to discuss its history, so this park is an opportunity to add to that initiative.

When it comes to the benefits of this project, it would create value and reduce damages. First, there would be environmental and health benefits. Remediating contaminated soil and groundwater reduces exposure to harmful chemicals, which can improve public health. The

stream restoration also enhances the water quality and reduces runoff, which benefits aquatic ecosystems and lessens pollution. Next, there would be a reduction in flood risk. The improved stormwater storage and green infrastructure reduce the flood risk to this area that is known to flood often, which can save a lot of money in property damages in the long run. North Carolina receives a lot of rain, so floodplain restoration can lower emergency costs from major storms as well. The habitat restoration also helps many animals nearby, such as monarch butterflies, blue herons, box turtles, and the Neuse River waterdog. Restoring the wetlands naturally filters pollutants, which can decrease the burden on the current systems and create better, long-term environmental benefits.

This project also increases the economic and social value of the area. The public greenspaces would benefit nearby property values and support local businesses. It can also attract residents, tourists, and employers who are looking for sustainable city environments. Having accessible greenspace allows nearby residents access to nature, especially those who may not have a private yard. Parks are proven to reduce stress, anxiety, and depression through the calming environment too. Access to nature has benefits to human health, childhood development, and social well-being, which this project can provide. Finally, there is added recreational value. This project gives locals a chance to walk, bike, and run which they may not have done before in this area. The new park would provide recreational opportunities, mental health benefits to those who visit, and simple enjoyment for users. Due to these direct benefits, the residents can experience reduced healthcare costs, improved worker productivity, and strengthened community. In general, according to the Raleigh, NC website and official project description, “this park project incorporates environmental remediation, stream restoration, flood and stormwater management, walking paths, gathering spaces, and extensive landscaped and

naturalized areas." (Sharp, 2024). This project would create economic, environmental, and social benefits.

However, this project does not occur without costs. For construction and compliance costs, they will mainly be incurred by the City of Raleigh, but they received about $8.6 million in grant funding from the National Park Service (NPS), so the NPS incurred some cost. These costs include site remediation, which will include removal and treatment of the contaminated soil and groundwater. There will also be costs for stream restoration and stormwater improvements, such as channel stabilization, floodplain regrading, and wetland restoration. The construction of the public park will also be a cost, including trails, landscaping, lighting, recreation structures, restrooms, and parking. To add, there will be costs from planning, designing, and permitting this project. This can include environmental assessments, engineering plans, and regulatory approvals. Finally, there will be costs of labor, materials, equipment, and project management. The total estimated cost of the project is around $15 million, although it may be higher due to inflation, especially with the increasing cost of construction materials.

As far as environmental costs go, there will be some. From the construction of the project, there will be dust, noise, and emissions creating a cost to the environment. There will also be energy consumption from the heavy machinery used. Before the restoration efforts are complete, there can also be possible short-term habitat disruption in the area. Finally, there will be waste disposal costs from the currently contaminated soil that must be removed to a proper disposal site. Moreover, there will be monitoring and enforcement costs associated with this project. The City of Raleigh Parks, Recreation and Cultural Resources will be responsible for this project and the ongoing maintenance. As far as maintenance costs go, there will be costs associated with routine landscaping, mowing, trash removal, and irrigation. There will also need

to be inspections of the stormwater infrastructure and sediment removal. Luckily, there are no regulatory enforcement costs associated with this project.

This project is efficient and cost-effective as the Smoky Hollow Park Project likely increases net benefits. It can improve public health, provide recreation, create better aesthetics, reduce flooding, create higher nearby property values, and improve nearby ecosystems. While the costs are high initially, it increases long-term benefits that outweigh them. The contamination cleanup removes a negative externality and creates positive externalities that improve social well-being too. The Smoky Hollow project also appears to be cost effective since it achieves substantial environmental and social benefits compared to its cost. Also, alternatives don't obviously outperform it. Aligning with my notes and what cost-effectiveness entails, it seems to be the least cost way to achieve the given goal, and has the most "bang for their buck".

One alternative would be to have a partnership with a developer who cleans and redevelops the land for mixed-use space with a public park. The land is still being restored, but it is just privately done and is used for a different purpose. This option could lower the public cost since the majority of cost would be on the developer. However, it might reduce the public access or environmental quality if the private developer gets more say in what the land is used for, such as building structures instead of planting trees. There is a greater chance for prioritization of commercial development over environmental restoration. Considering Raleigh's strong interest in expanding greenspace, conflict could arise by putting it in the hands of a developer.

Another alternative could be to convert the site into part of a connected urban greenway system funded by grants or nonprofits. This option could use nonprofit funding which could lower costs for the city, but might result in smaller-scale amenities compared to a full-scale park project. Depending on non-profits for funding can also cause uncertainty as their income may not

be as stable. There is also no guarantee for as many social and recreational benefits. I don't think either of these alternatives clearly cause greater total benefits at the same cost since trade-offs exist. Both of these alternatives could remediate contamination and provide public access, but the financing and purposes are different.

One important option to also consider is the baseline of just doing nothing and keeping this site as a paved facility, as that is always an option. However, keeping the area as-is would allow contamination to continue and poses risks to groundwater and nearby residents. There would be no real financial cost in this scenario, but there would be ongoing environmental costs, such as ongoing flood issues. Leaving these issues unresolved will create even more long-term harm and more problems for the future. The city would miss the opportunity to create a valuable and beneficial area for its community.

In conclusion, the Smoky Hollow Park Project is the best approach to rectifying the polluted site. It provides positive economic benefits for the city, helps the environmental state of the area, and brings social benefits to its users. All of these components outweigh any compliance, monitoring, enforcement, or environmental costs from this project. As the city continues to grow, the demand for outdoor recreation and outdoor space will only rise, increasing the long-term benefits of this park. There are also many ways to add to this project in the future, which can create even more benefits. Ultimately, this project successfully transforms contamination into community.

References

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Figure 1:

Source: The Raleigh Connoisseur. (2018, October 27). *Smoky Hollow Park*. DTRaleigh Community. https://community.dtraleigh.com/t/smoky-hollow-park/668/4

Figure 2:

Source: *Smoky Hollow Park - Draft Schematic Design Survey (Dec. 2023 - Jan. 2024) - PublicInput*. (2023). Raleighnc.gov. https://engage.raleighnc.gov/shp-sd-survey

AI Disclose Statement:

I used ChatGPT throughout this paper and previous assignments as a tool to help me. I originally used AI to help me brainstorm ideas and give me basic insight into this project. I chose my topic on my own before using AI to get a basic understanding of what goes into a project like this (stream restoration, stormwater management, etc). Throughout the rest of the assignments and paper, I used AI to help me organize my thoughts, tweak the structure of my answers, and to ensure I was addressing each part of the prompts. All of my analysis, writing, and explanations are in my own words.