Health Impact Assessment on Brownfield Program for the City of Pinellas Park, Florida

Fall 2019

CITY of Pinellas Park, FL
The Heart of Pinellas

HiAP
Health in All Policies
PINELLAS COUNTY COLLABORATIVE

Foundation for a Healthy St. Petersburg

Florida HEALTH
Pinellas County

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Executive Summary

According to the U.S Small Business Liability Relief and Brownfields Revitalization Act or "Brownfields Law", brownfields are "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (ATSDR Land Reuse, 2017). Brownfields are also commonly recognized as vacant or dilapidated structures that potentially pose environmental health and safety risks to affected neighborhoods (Litt et al., 2002). The community benefits of implementing a brownfield program that facilitates the redevelopment, reuse, and remediation of land on brownfields sites are overwhelming. Brownfield remediation can enhance the built environment, strengthen housing and neighborhoods, catalyze economic growth and development, and preserve the natural environment and vital water resources. More importantly, brownfield remediation reduces exposure to pollutants capable of contaminating soil, air, and water resources. When the public is exposed to these contaminants there are negative impacts to physical and mental health. Major negative health outcomes include poor mental health, asthma, heart disease, cancer, and poor maternal and infant health (Willis, B., 2018).

The presence of brownfields are tied to blight and urban decay, which increases negative perceptions of not just the brownfield site but also of the surrounding community. This blighting influence can impact the local economy and social networks as well as block investment that can improve infrastructure and provide badly needed community amenities. When brownfield sites are reused into more productive properties, blight is reduced as redevelopment reinvigorates the built environment, attracts further economic redevelopment opportunities, conserves natural resources, and resolves public health and equity issues. These benefits have raised local, state, and national commitment to creating the programs and funding required to carry out remediation where contamination is perceived and redevelopment where community benefits are maximized and negative health impacts are minimized.

The City of Pinellas Park (the City) is a local government intending to use brownfield redevelopment to improve public health using a Brownfield Program that will designate two brownfield areas in their jurisdiction; the proposed Brownfield Program is the subject of this Health Impact Assessment (HIA). The program intends to implement the core goals of the Florida Brownfields Redevelopment Act: to reduce public health and environmental hazards on existing commercial and industrial sites that are abandoned or underused due to these hazards; create financial and regulatory incentives to encourage voluntary cleanup and redevelopment of sites; derive cleanup target levels; and provide the opportunity for environmental equity and justice. The main activities of the Brownfield Program are to market perceived brownfields for redevelopment, assist developers with being eligible for and with applying for any applicable funding mechanisms, employing any administrative, financial, or regulatory incentives to developers to help offset redevelopment costs, and prioritizing brownfield redevelopment in order to maximize the positive effects of municipal public works and to better accomplish public health goals.

This Health Impact Assessment seeks to investigate and understand the impacts that perceived brownfields may have on public health, the local economy, community context and quality, and the built environment. Brownfields generally present themselves as cases of environmental injustices that not only negatively impact marginalized populations, but also negatively impact a wide range of social determinants of health. However, a Brownfield Program that has a health-focused implementation strategy that is well-informed on the various advantages of brownfield programming can address and resolve health and equity issues specific to Pinellas Park. This HIA constitutes an analysis of the relevant health and equity data that is needed to make this health-focused implementation possible. Using the findings of this report as a tool in the development and implementation of the proposed Brownfield Program can lead to the invigoration of brownfield sites and communities across the City. This will lead to healthier and more equitable communities, which in the end leads to a healthier population.

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Acronyms

HIA — Health Impact Assessment

HiAP — Health in All Policies

EPA — United States Environmental Protection Agency

FDEP — Florida Department of Environmental Protection

CRA — Community Redevelopment Agency

VDP — Vacant, Derelict Property

BSRA — Brownfield Site Rehabilitation Agreement

CHA—Community Health Assessment

CHNA — Community Health Needs Assessment

AMI — Area Median Income

What is an HIA, and why was One Conducted?

According to the National Research Council, an HIA is "a systematic process that uses an array of data sources and analytic methods and considers input from stakeholders to determine the potential effects of a proposed policy, plan, program, or project on the health of a population and the distribution of those effects within the population. HIA provides recommendations on monitoring and managing those effects" (NACCHO, 2019). This HIA was conducted to fulfill grant requirements of the Pinellas County HiAP Collaboration but its ultimate purpose is to address the major health and equity impacts that the proposed Pinellas Park Brownfield Program may incur on health outcomes. This HIA identifies ways to maximize those positive impacts, and minimize any negative impacts to public health or well-being. The Brownfield Program and its anticipated redevelopment initiatives will have implications for many social determinants of health, which the World Health Organization defines as the conditions in which people are born, grow, live, work and age; these circumstances are shaped by the distribution of money, power and resources at global, national and local levels. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status that can occur within and between communities. Some social determinants of health are education, housing, public safety, transportation, and economic opportunity (WHO, 2019). The immense potential the program has to impact social determinants of health makes it an excellent subject for an HIA.

In the United States, there are typically six phases in conducting an HIA. The phases of to conducting an HIA are as follows: screening, scoping, assessment, recommendations, reporting, and monitoring and evaluation. The depth and extent of each step is determined by the scope of the project and time constraints. Depending on how much time is available to conduct the HIA, the HIA can take one of three forms. There are Comprehensive HIAs that require an extensive research endeavor to collect and analyze data along with interpreting stakeholder input in order to assess any and all possible health or equity impacts. Intermediate HIAs generally take several months to complete due to the limited amount of stakeholder input or data it analyzes. Rapid HIAs or Desk-Based HIAs are created in several weeks or months to provide an overview of health impacts using limited data and input from stakeholders. This report covers a rapid HIA conducted by the HiAP Planner in Pinellas Park with assistance from the HIA Team, with the subject being a proposed Brownfield Program.

Screening	Determine whether an HIA is feasible, timely, and useful to the decision-making process.
Scoping	Create a plan for conducting the HIA, including identification of timeline, participant roles, and potential health risks and benefits.
Assessment	Describe baseline health of affected communities and assess the potential health impacts of the decision.
Recommendations	Develop practical strategies for promoting positive health impacts and/or mitigating adverse health impacts.
Reporting	Communicate progress and findings to decision-makers, affected communities, and other stakeholders.
Monitoring and Evaluation	Evaluate the HIA process and its impacts on decision-making. Monitor changes in health in affected communities.

Figure #1: Steps of a Health Impact Assessment

Rapid	Intermediate	Comprehensive
• 2 to 12 weeks • Broad overview of potential health impacts (little to no data collection and/or stakeholder engagement • Applied when time and resources are limited	• 12 weeks to 6 months • Involves collection and analysis of existing data with limited stakeholder input • Requires moderate time and resources	• 6 months to 1+ year • Involves collection and analysis of existing data with extensive stakeholder input • Requires significant time and resources

Figure #2: The Three Types of Health Impact Assessments

Source: Former Chesapeake Supply Brownfield Revitalization: Rapid Health Impact Assessment

Health in All Policies (HiAP)

Health in All Policies (HiAP) is a collaborative approach to making the healthy choice the most easily accessible choice in order to improve the health and equity of all people. HiAP seeks to incorporate health and equity considerations into decision-making and policy development processes across all sectors of local and regional government. According to the American Public Health Association and the Public Health Institute's report *Health in All Policies: A Guide for State and Local Governments*, key objectives of HiAP are to:

⇒ Increase cross-sector collaboration to break down institutional silos and encourage agencies to coordinate their efforts and goals which will increase policy impact, reduce redundancies in service provision, and improve program efficiency.

⇒ Engage all stakeholders on barriers to healthy choices in order to raise awareness of the social determinants of health (those factors in the built and natural environment that affect overall health, well-being, and quality of life) and help communities develop ways to reduce barriers that negatively impact public health and equity.

⇒ Promote health and equity through policy by developing a framework for including data-driven health and equity considerations into policy and program development to promote good health for all.

As a function of the Pinellas County HiAP Collaboration, which was enabled by the Foundation for a Healthy St. Petersburg and the Department of Health in Pinellas County, this HIA seeks to fulfill the goals of HiAP to familiarize Pinellas Park leadership with decision-support tools like HIAs and increase their understanding of the impacts their decisions have on health and equity outcomes in their jurisdiction.

Background on Proposed Brownfield Program

According to the United States Environmental Protection Agency's (EPA) Small Business Liability Relief and Brownfields Revitalization Act or "Brownfields Law", brownfields are "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant" (ATSDR Land Reuse, 2017). Brownfields are also commonly recognized as vacant or dilapidated structures that potentially pose environmental health and safety risks to affected neighborhoods (Litt et al., 2002). To be clear, brownfields are sites that create environmental issues, be they vacant, inhabited, abandoned or in use, due to either their current use, past use, or the environmental issues of the site. Common brownfields are gas stations, landfills, and factories. The environmental, public health, and safety risks that brownfields pose constitute the reason for conducting this HIA: sources of contamination tied to brownfield sites have the capacity to pollute air, soil, and water resources. Physical hazards on brownfield sites like uncovered holes, chemicals waste, unsafe structures and sharp objects also pose public health risks to populations living in close proximity, especially for children out playing and exploring (Brownfield, 2017).

Groups that are more vulnerable to being exposed to brownfield contamination are children, senior groups, transportation disadvantaged groups, disabled residents, and more frequently minority groups and low-income groups (Carroll, A., 2014). Minority groups and low-income populations suffer from environmental injustice that stems from brownfield exposure because brownfields are usually the result of land use patterns that concentrated environmental health hazards such as factories, industrial parks, landfills, and waste management facilities in urban places near minority and low-income communities (Maantay, J., 2002). Prolonged exposure has given way to a myriad of health inequities such as higher cancer rates, higher incidences of cardiovascular and respiratory disease, and decreased maternal and infant health in black and brown populations. Additionally, brownfields impact a large range of social determinants of health by holding land and existing structures hostage when they can be reused into active and purposeful sites that cater to local economic, community, transportation, and environmental needs (NEJAC, 1996). The EPA and the Florida Department of Environmental Protection (FDEP) recognize the critical need to redevelop, repurpose, and reuse brownfield sites to eliminate these health issues and stark inequities.

To do this both entities encourage local governments to redevelop brownfields using community engagement and various redevelopment strategies. Brownfields tend to be located in areas that are centrally located and close to existing infrastructure, workforces, and residents, making them excellent redevelopment projects with the potential to alleviate health, economic, social, and environmental issues. For example, the City of Tampa used their brownfield program to reinvigorate a blighted structure that was once a cannery from 1936 to 1981 into an Ikea. A site that once had contaminated groundwater from sources of petroleum, arsenic, aluminum, and iron, now functions as a major retailer that employs many residents and attracts visitors from the entire region (Brownfield Annual Report, 2018). The redevelopment strategies that can be employed to repurpose brownfield sites and reduce exposure to pollution are explored in this HIA.

Some strategies are developing parks and community gardens, Historic Preservation, Complete Streets and Smart Growth. Smart Growth is a planning method that covers a range of development and conservation strategies that help protect our health and natural environment and make our communities more attractive, economically stronger, and more socially diverse (About Smart Growth, 2019). The EPA recommends using Smart Growth principles to reimagine brownfield sites as compact, mixed-use projects rich in local business, housing meeting all socioeconomic demands, pathways safe for pedestrians and bicyclists, and green space. This improves health by increasing community connectivity and social interaction, encouraging physical activity, empowering families via economic opportunity, and bolstering the City's attractiveness as blighted structures are revitalized into community assets.

Figure #3: City of Tampa Brownfield Project.

The EPA also strongly recommends using brownfields for healthfield redevelopment. Healthfields refer to the reuse of brownfields into projects that address and resolve health disparity by increasing access to healthcare and health services. "Healthfield redevelopment has the potential to improve local access to care and reduce health disparities through redevelopment. [Redevelopment] can create jobs and bring other benefits" (2019). Acting as a response to environmental justice issues, healthfields are projects that provide: health care (health clinics or centers, hospitals, vision care, dental care, or urgent care), open spaces such as parks and green space, or access to healthier food choices (grocery store, community gardens, farmers markets, restaurants with healthy food options) (Ballogg, M. 2015). This HIA recommends the use of all possible health-focused redevelopment strategies along with Smart Growth and healthfield redevelopment.

According to FDEP, the total number of brownfields in Florida as of 2017 was 460 (Brownfield Annual Report, 2018). Similarly, the number of completed brownfield remediation projects in Pinellas County totaled 14 in 2019. Using FDEP's Brownfield Program funding and technical assistance support that was established through the Brownfield Redevelopment Act of 1997, as well as tools offered through the EPA, Pinellas Park aims to establish its own Brownfield Program that facilitates redevelopment initiatives that resolve brownfield issues persisting in its jurisdiction. The program will assist property owners and developers in redeveloping brownfield sites and possibly offer development incentives to offset project costs. According to Florida Statutes, local governments can use brownfield programs to alleviate redevelopment costs for developers through financial and regulatory incentives. These include but are not limited to tax increment financing, historic preservation tax exemptions, local grant programs for façade or signage enhancements, expedited permit and development applications, and waived permit fees, impact fees, or utility fees.

Using an inventory of perceived brownfield sites, the City aims to concentrate redevelopment in designated brownfield areas, market redevelopment sites to developers, and assist said developers as well as property-owners in applying for assistance to remediate brownfield sites according to guidelines set in the Brownfields Redevelopment Act. The potential developmental impact that the proposed program poses to the built environment and other social determinants of health makes it an ideal topic for an HIA. The political feasibility of the HIA is bolstered by the City's commitment to implement HiAP, a commitment made in 2018 as it entered into the Pinellas County HiAP Collaboration with Pinellas County and the City of St. Petersburg.

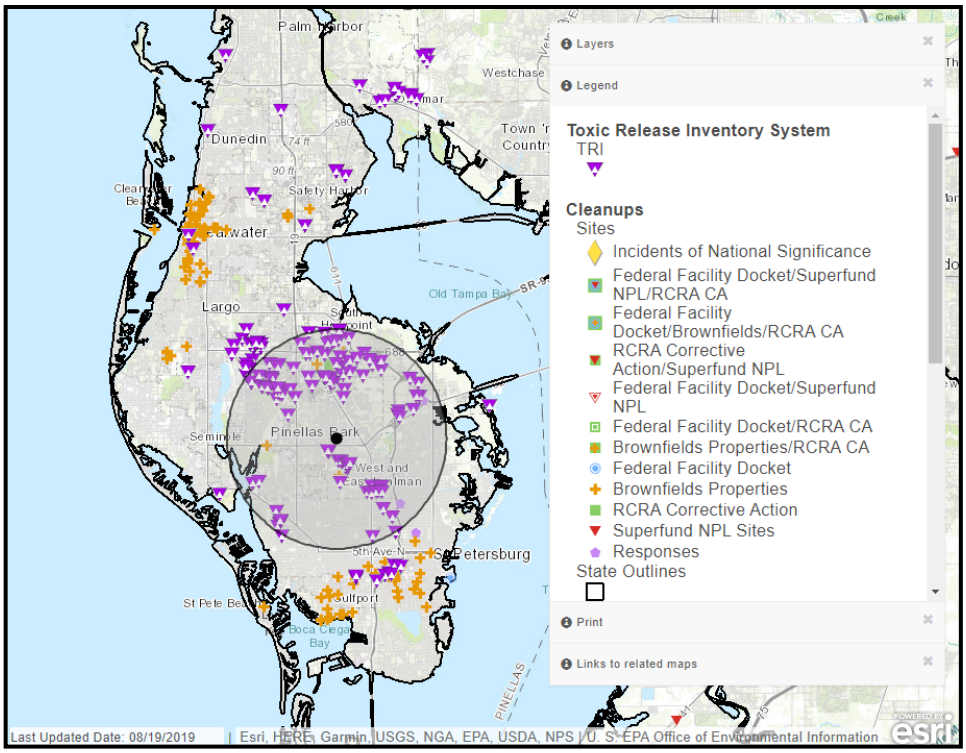


Figure #4: EPA Clean up in my Community Tool on the Toxic Release Inventory

(Source: EPA "Cleanups in my Community Map" Tool)

Official designation of brownfield areas in Pinellas Park should be strategic: according to Figure #4 which was extracted from the EPA "Cleanups in my Community" interactive map, Pinellas Park only has a few brownfield sites designated in its jurisdiction, but has numerous Toxic Release Inventory Systems (TRI) in its northern section. TRI tracks the management of certain toxic chemicals by industry sectors that may pose a threat to health and the environment through annual reporting requirements. Effectively designated brownfield areas will allow cleanup and redevelopment efforts to better reduce local TRIs and other related sources of pollution.

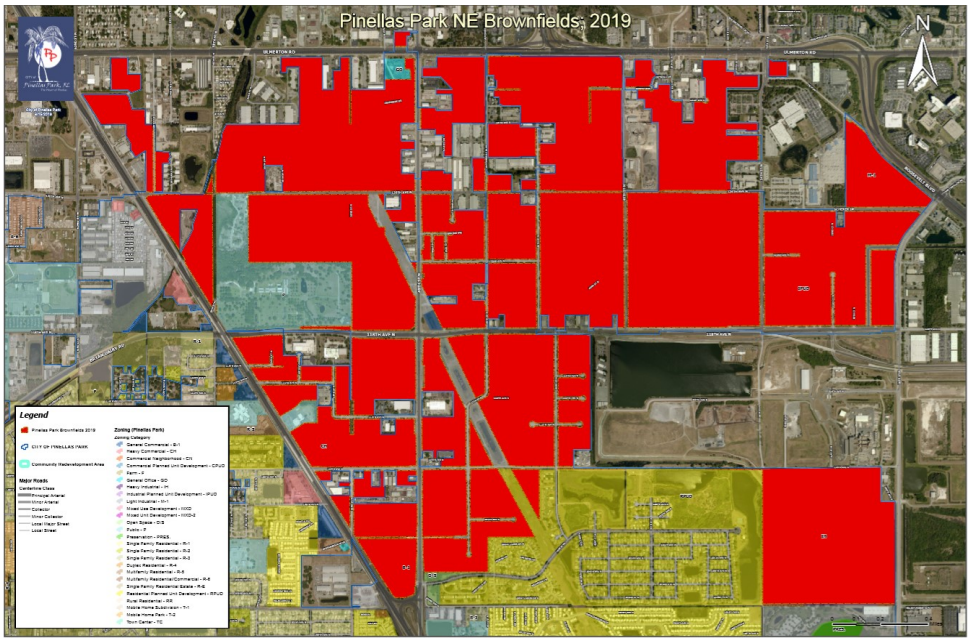
While planning for the program, the HIA Team designated two brownfield areas (to simplify analysis and program planning, both areas do not include residential property) which are the north-eastern section of the City, which is designated because of its majorly industrial, manufacturing, and heavy commercial uses, and the City's nonresidential portion of the Community Redevelopment District to catalyze the much needed community and economic development initiatives aimed at the area. Top concerns of the HIA Team for the Brownfield Program are:

- The decrease in public exposure to brownfield contaminants
- The increase in local businesses and jobs
- The increase in property values and tax revenues that can be applied to public infrastructure projects
- The provision of healthier neighborhood services and amenities
- The improvement of City connectivity and resident perceptions of safety and comfort

Activities to repurpose brownfield sites will employ these values to ensure revitalization supports the social determinants of health and motivates City efforts to provide residents with an enhanced quality of life.

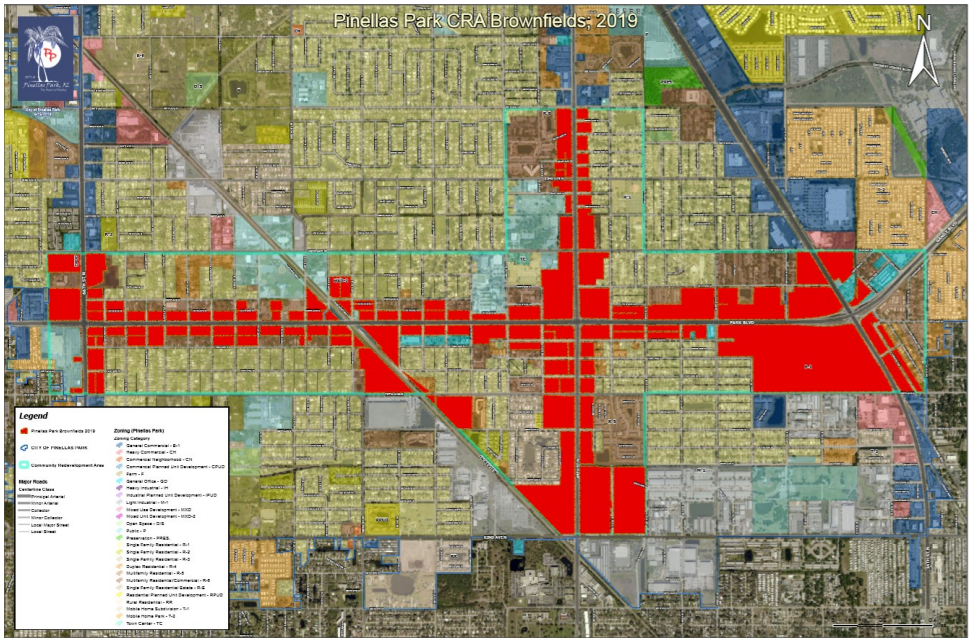
Proposed Brownfield Area Profiles of Pinellas Park, FL

Northeast Brownfield Area	
Land Use:	Industrial, Heavy Commercial, General Commercial
Housing:	Multifamily Housing, Some Single-Family Housing
Road Network:	Major roads include Ulmerton Road which leads to Interstate 275, 118th Ave, 126th Ave, and 49th St.
Geography:	Numerous industries, businesses, and roads prevent tree canopy. Area is inundated with water bodies.
Acreage of Perceived Brownfields:	1844.3



Map #1: Proposed Northeast Brownfield Area

Redevelopment District Brownfield Area	
Land Use:	Single-Family, Commercial Retail, Manufacturing
Housing:	Single-Family Housing Some Multifamily Housing
Roads Network:	Major roads include Park Blvd which leads to Interstate 275, US 19 or 34th St., 49th St., and 66th St.
Geography:	Mix of single-family housing, businesses, shopping centers, restaurants, parks, and schools
Acreage of Perceived Brownfields:	512.33

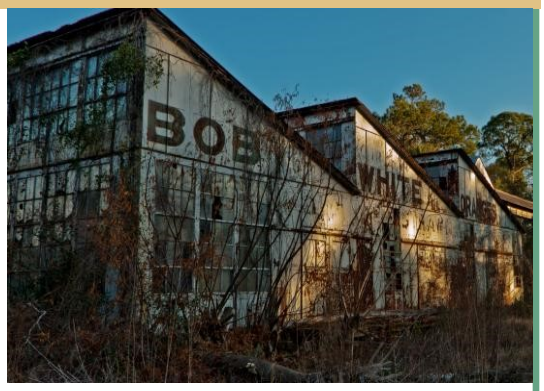


Map #2: Proposed Redevelopment District Brownfield Area

See Map #11 in the Appendix for a city-scale map of the proposed brownfield areas. The HIA Team designated these brownfield areas because of their land use, their likelihood of exhibiting blight and vacant derelict properties (VDP), and their proximity to commerce and road networks. Assessing land use is critical; land use can reveal the probability that contamination has occurred. The proposed brownfield areas do not include any residential property, only major commercial, industrial, and manufacturing property. According to the City GIS staff, there are 648 vacant properties in Pinellas Park, and a significant number are located in the Northeast Brownfield Area, with many persisting in the Redevelopment District Brownfield Area as well. These vacant properties are excellent opportunities for brownfield redevelopment. While designating brownfield areas allows the City to focus redevelopment where it will make the greatest impact, the proposed Brownfield Program will still assist developers who wish to redevelop sites that are perceived brownfields but are outside of the designated areas. Also, property owners within the designated brownfield areas will have the option to opt out of the Brownfield Program if they so choose, so as not to be subject to its activities.

Health Impact Assessment Summary

Why conduct the HIA? The HIA provides recommendations that address how a brownfield program can positively impact resident health. A brownfield program can influence each social determinant of health: housing, economic development, public safety, water and sanitation, natural environment, built environment, transportation, and community context. The immense potential a brownfield program has to impact various factors that contribute to quality of life makes it an excellent subject for an HIA and a gateway to healthy development in Pinellas Park. The HIA thoroughly analyzes a wide range of data to identify how a program can maximize positive health impacts and minimize negative impacts.



Source: Center for Creative Land Recycling Website

Factors to Consider

Brownfields either (1) blight neighborhoods as dilapidated or vacant structures which decrease property values and perceptions of safety, or (2) pose health risks as contamination sources that pollute soil, air, and water reserves. Public exposure to either can impact health, as blight reduces property values which negatively affects socioeconomic status, public safety, and mental health. Exposure to brownfield contamination has varying impacts depending on the contaminant: cancer, heart disease, lung diseases such as asthma, and poor maternal health. Further, brownfields hold profitable land hostage that has the potential to be repurposed into community assets that serve greater health and equity needs. Brownfield programs can guide the redevelopment of sites so they enhance quality of life as parks, mixed-use projects, farmers markets, pharmacies, trails, and locally-owned business. This also creates jobs and increases property values and tax revenues, ultimately invigorating the City.

What are the Steps in an HIA?

Screening: Identifying plan, project, or policy decisions for which an HIA would be useful

Scoping: Planning the HIA process and identifying what health risks and benefits to consider researching

Assessment: Identifying affected populations and quantifying health impacts of the decision

Recommendations: Suggesting practical actions to promote positive health effects and minimize negative health effects

Reporting: Presenting results to decision makers, affected communities, and other stakeholders

Monitoring and Evaluation: Evaluate the value of the HIA process, determine the HIA's impact on the decision, and assess the impact that implemented recommendations have made on health outcomes

Key Health Findings and Impacts

- Groups most vulnerable to brownfield exposure are children, the elderly, disabled persons, and income groups who experience blight
- The economic benefits of brownfield projects are the revitalization of existing structures, business and job creation, and raised property values and tax revenues
- Brownfields are advantageous projects because they sit on prime real estate located in already developed areas that are close to workforces
- Redevelopment efforts that use a "Smart Growth" approach can meet resident needs and provide health, economic, social, and green benefits
- Populations exposed to contaminated brownfields or blight face more negative health, wellness, and mental health outcomes
- Brownfield infill projects are opportunities to develop community amenities like parks, pharmacies, health clinics, shelters, and farmers markets or community gardens
- Regulatory and financial incentives can help attract economic investment and offset costs of redeveloping on brownfield sites
- Brownfield projects will improve neighborhood quality while maintaining the City's character and citizen base by including residents in project planning
- One acre of reused brownfields can conserve 4.5 acres of green space, prevent sprawl, save trees, and preserve habitat connectivity
- Physical hazards that can be found on brownfields are uncovered holes, sharp objects, chemical waste, and unsafe structures

Brownfield Program Recommendations

1) Establish a Brownfield Program that uses health and equity data to prioritize redevelopment in areas that: have lower socioeconomic status, indicate poorer health conditions, are in closer proximity to public places, or can improve community connectivity and quality. This program will establish an Advisory Board to guide program implementation and monitoring.

2) Create a community engagement plan to aggressively collect stakeholder input that can inform goals for brownfield redevelopment and identify potential projects. Input gathered can be used to guide projects focused on health equity, community resilience, and placemaking. Engagement should also raise residents' awareness of the implications brownfields have on public health and the environment.

3) Develop and enforce the use of a healthy development checklist for future brownfield redevelopment projects in order to prioritize projects that positively impact health and equity over those that do not. The checklist can be used to estimate the appropriate incentives that may potentially be available to offer to project proposals. The checklist can also serve as a rating system that rewards health-focused projects with positive "Health Score" certificates that also function as a marketing agent.

4) Include health and equity criteria in the review process for brownfield project proposals to support the early consideration of the project's potential impact to public health.

5) Monitor health data at the census tract level using assistance from the Florida Department of Health in Pinellas County where applicable to prioritize redevelopment projects.

6) Identify grants or programs that can support business development that achieves local economic development goals. Likewise, encourage public investment into the Brownfield Program to facilitate community projects such as the creation of parks and green space.

7) Define desired business/industry for designated brownfield sites and establish a marketing plan that will attract compatible economic development projects.

8) Encourage developers to allocate a percentage of their business' employment opportunities that were created to reach job creation minimums for funding purposes for Pinellas Park residents, and also encourage developers to include residents in construction and redevelopment where possible. Similarly, encourage developers to create affordable housing units wherever possible to meet minimum requirements of brownfield funding opportunities.

9) Promote redevelopment that provides health services (i.e. health clinics, pharmacies, counseling centers) and also support the growth of the Pinellas Park Medical District.

10) Maintain a database of ongoing and completed brownfield projects and consider conducting site tours of redeveloped sites to show program progress. This database should also catalogue vacant sites to help identify reuse projects.

11) Encourage developers to utilize resources from the FDEP and the EPA that provide assistance with brownfield redevelopment and business creation.

12) Advocate for businesses to establish Community Benefits Agreements with communities or to reserve revenues for the provision of community services such as sports programming, healthy eating tutorials, or urban gardening.

13) Encourage partnerships between developers and property-owners to increase collaborations that lead to development projects that protect and promote health.

14) Support redevelopment that is compatible with surrounding uses. Work with municipal departments to create zoning ordinances and Comprehensive Plan amendments that support brownfield projects that enhance community quality.

15) Seek collaborative brownfield redevelopment opportunities with Pinellas County.

Mary Eaves was a canning facility and coal yard in Jacksonville's north side. These activities resulted in arsenic and petroleum contamination in the soil. Remediation of the site has led to the creation of a four-story, 80-unit senior citizen affordable housing complex as well as five full-time positions.

A brownfield site located in Pompano Beach was originally comprised of four parcels and was designated for commercial uses. Contamination from arsenic and PAHs was identified to have polluted site soils and groundwater. After completing soil removal and construction, the site was ready for use in 2018 as a Wal-Mart.

In 2010 the City of Doral purchased 18+ acres of vacant land for the construction of Doral Legacy Park. Arsenic soil contamination was identified on the land, which was removed. The Doral Legacy Park opened in 2017 with athletic fields, tennis courts, an outdoor movie area and a 35,000 sq. foot community center.

Source: Florida Brownfields Redevelopment Program 2019 Annual Report

HIA Screening

The screening phase of the HIA is the initial step to decide whether or not a HIA should be conducted. It involves answering a set of questions to determine a group's capacity to effectively conduct an HIA and the worthiness of the value added from said HIA to the subject at hand.

Table #1: Rapid HIA Screening Checklist

1. Are health impacts already being considered? Are they relevant or easy to identify?
The health impacts that have been considered are those mainly tied to the economy (opportunities for economic redevelopment) and the natural environment (reducing any potential contamination). More investigation and analysis is required to consider brownfield health/equity impacts that are more difficult to identify, such as impacts on mental and physical health, perceptions of safety, social patterns, transportation and built environment, water management, economic opportunity, and housing. When all potential health impacts are identified via research, they can be analyzed to better provide recommendations that maximize beneficial effects and minimize harmful effects of brownfield redevelopment.
2. Does the program impact health directly or indirectly? How So?
It impacts health both directly and indirectly. Through the cleanup of contaminated sites or perceived contaminated sites (blight, disrepair, and urban decay) known as brownfields, populations are less likely to be exposed to pollutants or low-quality infrastructure. However, the site redevelopment can target greater health or equity disparity and indirectly resolve them in the long-term with an informed awareness of local public health issues, effective research, and planning. By analyzing public health data and identifying where the disparity or "need" for solutions are, recommendations for implementing the Brownfield Program can better address ways that brownfield redevelopment can resolve a wider range of Pinellas Park's health and equity needs.
3. Is further investigation necessary because more information is required on the potential health impacts?
Yes.
4. Is the population affected by the program at large?
Yes, since perceived brownfields throughout the City will be eligible to utilize the proposed Brownfield Program's services.
5. Are there any socially excluded, vulnerable, disadvantaged groups likely to be affected?
Yes, lower-income groups, senior groups, minority groups, disabled groups, and children are commonly more vulnerable to brownfields. These groups may be impacted by the implementation of the proposed Brownfield Program in Pinellas Park. Groups that are housing insecure may also be vulnerable to brownfield redevelopment which may potentially displace them because of increased property values. Business owners and property owners can be at a monetary disadvantage if their property sits on a brownfield.
6. Where are the proposed study sites?
There are two proposed brownfield areas within the City that are intended to be formally designated with the creation of the proposed program, but for the purposes of this report the City as a whole serves as the study site.
7. Why was an HIA performed?
An HIA was performed because of the overwhelming ability the proposed program has to: impact various social determinants of health, inspire collaboration among City departments, and outline short-term and long-term strategies, objectives, and goals of the program so it may align with City economic development goals.
8. What is the decision being informed?
How can the implementation of the proposed Brownfield Program constantly consider public health and equity outcomes and enable relating local redevelopment initiatives to also consider public health and equity outcomes?
9. What are the program's problem sets or issues of the decision, such as serious negative health impacts?
Continued blight within the City and its CRA area, continued public exposure of pollutants within potential brownfield sites, missed opportunities to provide healthier infrastructure (walkable streets, green infrastructure, affordable housing, green space), incorrect reuse of perceived brownfield sites, timeline of the implementation of the program as it is contingent on the willingness of developers/property owners to utilize it, and limits on available funding for redevelopment.
10. Are the correct resources available to complete the HIA?
Yes.
11. Is the HIA politically feasible?
Yes, due to City Leadership's commitment to HiAP and City Staff's commitment to creating a Brownfield Program.
12. Who makes the decision?
Pinellas Park City Council.

Who are the primary stakeholders for this program?

Identifying the main stakeholders of the project, program, plan or policy that is the subject of the HIA is a critical step in the screening phase. Understanding the stakeholders' role, stake, and their contribution can better inform the process of completing the HIA and also indicate time constraints in collaboration or engagement.

Table #2: HIA Stakeholder List

Stakeholder	Primary, Secondary, or Informant	What is their Stake?	What will be their contribution?
HIA Decision Makers	Primary	City leadership	Approval of HIA recommendations
Economic Development	Primary	Program team member	Creation of Brownfield Program
Community Redevelopment Agency	Primary	Program team member	Creation of Brownfield Program
Planning and Development Review	Primary	Program team member	Technical assistance
Public Works	Primary	Program team member	Technical assistance
Neighborhood Services	Primary	Creation of new businesses or homes	Code enforcement data
Community Services	Primary	Program team member	Technical assistance
Leisure Services	Primary	Possible creation of new parks	Data of green and recreational spaces
Police Department	Primary	Change in crime and perceptions of safety	Crime data
Building Services	Primary	New process for brownfield sites	Technical assistance
OMB	Primary	Approve budget for new program	Budgeting
City Landowners	Primary	Neighborhood quality and household economics	Limited public outreach
City Business Owners	Primary	Economic growth or potential property redevelopment	Limited public outreach
Pinellas Park Gateway Chamber of Commerce	Primary	Economic growth and population growth	Economic data and limited public outreach
Florida Department of Health	Secondary	Change in resident health and equity outcomes	Health and equity data
Forward Pinellas	Secondary	City-wide redevelopment	Technical assistance
Florida Department of Environmental Protection	Informant	Increase in BSRA submissions	Brownfield information, technical assistance, and program guidance
Pinellas County Department of Economic Development	Secondary	Economic growth and population growth	Economic data
State Department of Economic Opportunity	Secondary	City-wide redevelopment and economic growth	Information about brownfield redevelopment projects
Environmental Protection Agency	Informant	Increase in remediated brownfield sites	Brownfield information, technical assistance, program guidance
SWFMD	Secondary	Change in environmental risks to water resources	Technical assistance
Penny for Pinellas	Secondary	Redevelopment and economic/ population growth	Funding for planning projects

HIA Scoping

During the scoping phase, the HIA Team must identify the potential health effects that will be considered in the assessment phase and create a plan for completing the assessment. This includes specifying their respective roles and responsibilities. Here, logic modeling and research will be employed to identify the goals and intended outcomes of the HIA process. Because of the limitations of this HIA, continued use of the HiAP planner may be required for: engaging the HIA Team to incorporate this HIA's recommendations into the implementation of the proposed Brownfield Program, assessing real contamination and city-scale health outcomes, and collecting stakeholder input that can be applied to brownfield remediation that supports place-making.

Rapid HIA Scoping Checklist

What is the objective of the proposed Brownfield Program and its key Benefits?

The main objectives of the Brownfield Program are to identify local brownfields, market its reuse to the landowner or to ideal developers, and if needed assist said developers or landowners in applying for assistance to offset costs and liabilities associated with remediation. Should a brownfield be located within the Pinellas Park Redevelopment District, the allocation of CRA funds for brownfield remediation can be pursued. Also, property owners located within the designated brownfield areas will have the option to opt out of the Brownfield Program if they so choose, so as not to be subject to its activities. The ultimate goal of the program is to clean up contamination and redevelop blighted sites for commercial development, community development, or for the development of affordable housing.

At first glance, the benefits of a Brownfield Program revolve around the cleanup of contamination to protect natural and water resources, and to protect the public from exposure. However, brownfield remediation spurs economic development, increases a region's property values and its tax base, and the creation of new business attracts further economic growth and the creation of jobs. This is especially true of brownfield sites that already have reduced property values and offer prime urban locations. As tax revenues increase and opportunities for continued redevelopment and placemaking rise, perceptions of safety also increase due to the revitalization of blighted and abandoned structures.

Brownfield remediation can employ community outreach strategies to resolve issues of environmental justice by meeting specific needs of populations most vulnerable to brownfields, blight, and VDP. These needs could be observed as poor access to green space, affordable housing and healthcare services, safe and walkable streets, and opportunities for social interaction. Engaging residents and other stakeholders can assist in identifying ways that brownfield remediation can increase access and resolve other issues on local brownfields and blight. Lastly, with the proper reuse of existing infrastructure, remediation can reduce sprawl and its overconsumption of natural and agricultural land as well as transportation, energy, and time resources.

Table #3: Goals of this HIA Report

Goal #1	Explain link between brownfield remediation and public health outcomes of residents most vulnerable to brownfields to support recommendations on meeting key health, equity, and economic needs of residents.
Goal #2	Identify ways that the Brownfield Program can generate more health promoting opportunities for residents by appropriately prioritizing land development and incentivizing developers.
Goal #3	Develop effective recommendations for the program's implementation strategy that will allow it to build on local projects and plans so that brownfield redevelopment more effectively enhances local infrastructural improvements and placemaking initiatives.

HIA Scoping

What is the Value-Add of this HIA?

The value added to the program are one, the increase in awareness and available information that will enable stakeholders and decision makers to make better informed decisions regarding this program. The second is the health and equity recommendations that will be provided to maximize the positive health impacts of the program, which would not have otherwise been provided. With the recommendations in this HIA, the Brownfield Program's implementation process can consider health and equity into both the development and implementation of the program. The HIA will help outline ideal program priorities, potential health and equity impacts, and ways to address them. Likewise, the HIA will enable a more health-considerate approach to monitoring and revising the program to ensure its success. The physical manifestations of the value added from conducting an HIA on the Brownfield Program are safer streets and neighborhoods, improvements to the City's park system and allocation of green space, increased business ownership and jobs, revitalized communities with renewed purpose, better connected neighborhoods, progressive planning projects such as Complete Streets and Smart Growth, increased resident pride and community confidence, and increases in healthcare services that makes the healthy choice the easier choice for residents.

What are the geographical boundaries of the program's impacts?

The City of Pinellas Park, with a focus on the proposed Redevelopment District Brownfield Area and Northeast Brownfield Area.

What is the time frame?

June 2019 – December 2019

Is the magnitude of the program significant?

Yes

What are the research questions of this HIA?

Question 1: How can brownfield remediation improve the health and wellness of residents and create equitable communities?

Question 2: How can brownfield remediation support health promoting land redevelopment and improve community quality?

Question 3: How can the program's strategic planning foster economic growth for businesses and improve the economic opportunity and mobility of residents?

What methods will be used in this HIA?

⇒ Desktop research to analyze a range of data: completed HIAs that focused on brownfield projects, existing empirical literature on environmental, social, economic, and public health impacts derived from the presence of brownfields, the health benefits of brownfield redevelopment, and public health data specific to Pinellas Park and Pinellas County

⇒ Qualitative and quantitative research methods to assess existing health conditions and potential health outcomes derived from exposure to brownfields in Pinellas Park

⇒ GIS mapping and other visual analysis methods (tabling, graphing)

⇒ Logic modeling

⇒ Limited community/stakeholder engagement

HIA Implementation and Process Timeline

Establishing that the proposed Brownfield Program would be a feasible topic for this HIA comprises the Screening section of this report. The majority of the criteria listed in the Screening checklist were answered when a portion of the HIA Team met in early June to discuss the scope and goals of the proposed Brownfield Program. This section and the Scoping section were drafted and refined during the July HIA training that was organized by the Pinellas County HiAP project and led by the project consultant, Dr. Sandra Whitehead. Also, during the training session the health impact categories (see Table #5) for this report were identified, a Logic Model was drafted (see Figure #5) to illustrate outcomes assumed to follow program implementation based on data assessment. An HIA work plan was also drafted to organize HIA task completion. The Logic Model is informed by the intended activities or actions that will follow the creation of the Brownfield Program with support from this HIA. Because of the scope of the Brownfield Program (city-scale over project-scale) the desired outcomes are based off environmental, economic, and public health benefits provided by brownfield programs which are affirmed in the Assessment. Similarly, the health impact categories of the Assessment are based on these benefits.

The Assessment was conducted from July 2019 to September 2019. The Assessment is organized by health impact category, and each category outlines existing conditions for Pinellas Park or for Pinellas County that indicate disparity in health or equity. This data reveals health and equity conditions, such as poverty rates, safety perceptions, and access to parks. Disparity in the data was then evaluated and used to develop a literature review for each health impact category. The literature review summarizes available literature about brownfields to reveal how a brownfield program has the capacity to address and resolve health disparity apparent in analysis of the existing conditions. As such, the Assessment consists of community-based data and literature-based data that illustrates the benefits a brownfield program can provide to address Pinellas Park's specific health and equity needs. The end of each health category is summarized by a table (Table #13, #17, #21, and #23) that lists those indicators that the data suggests can measure the success or impact of the Brownfield Program should it adopt this report's recommendations.

The disparities observed in the Assessment were used to inform the drafting of HIA recommendations, which were finalized with the help of the HIA Team and Dr. Whitehead in November 2019. These recommendations are intended to guide the implementation of the proposed Brownfield Program and to assist in prioritizing brownfield remediation projects. The Monitoring and Evaluation section of the HIA consists of a number of process evaluation criteria and outcome evaluation criteria. This criteria will assess the value added by the HIA process and in time, the impact the report had on health and equity outcomes via the implementation of the Brownfield Program. See Table #4 to see the HIA timeline of completion. Reporting, the last step of the HIA process, involved receiving stakeholder input on the final draft of the HIA report. This step was conducted in December 2019.

Screening
Scoping
Assessment
Recommendations
Reporting
Monitoring and Evaluation
Editing
HIA Training
HIA Team Meeting
Council Meeting

Table #4: HIA Timeline

June 2019		July 2019		August 2019		September 2019		October 2019		November 2019		December 2019	

Overview of HIA Assessment

The Assessment section of this HIA covers the analysis of various data and information that reveals how brownfields may be impacting Pinellas Park residents, known health risks associated with brownfields, and ways that brownfield programs can reduce said impacts and risks. The purpose here is to understand what impacts perceived brownfield have on Pinellas Park and identify any resulting place-based health and equity disparity. With this information, HIA recommendations can be applied to program implementation so it is more considerate of existing health disparities.

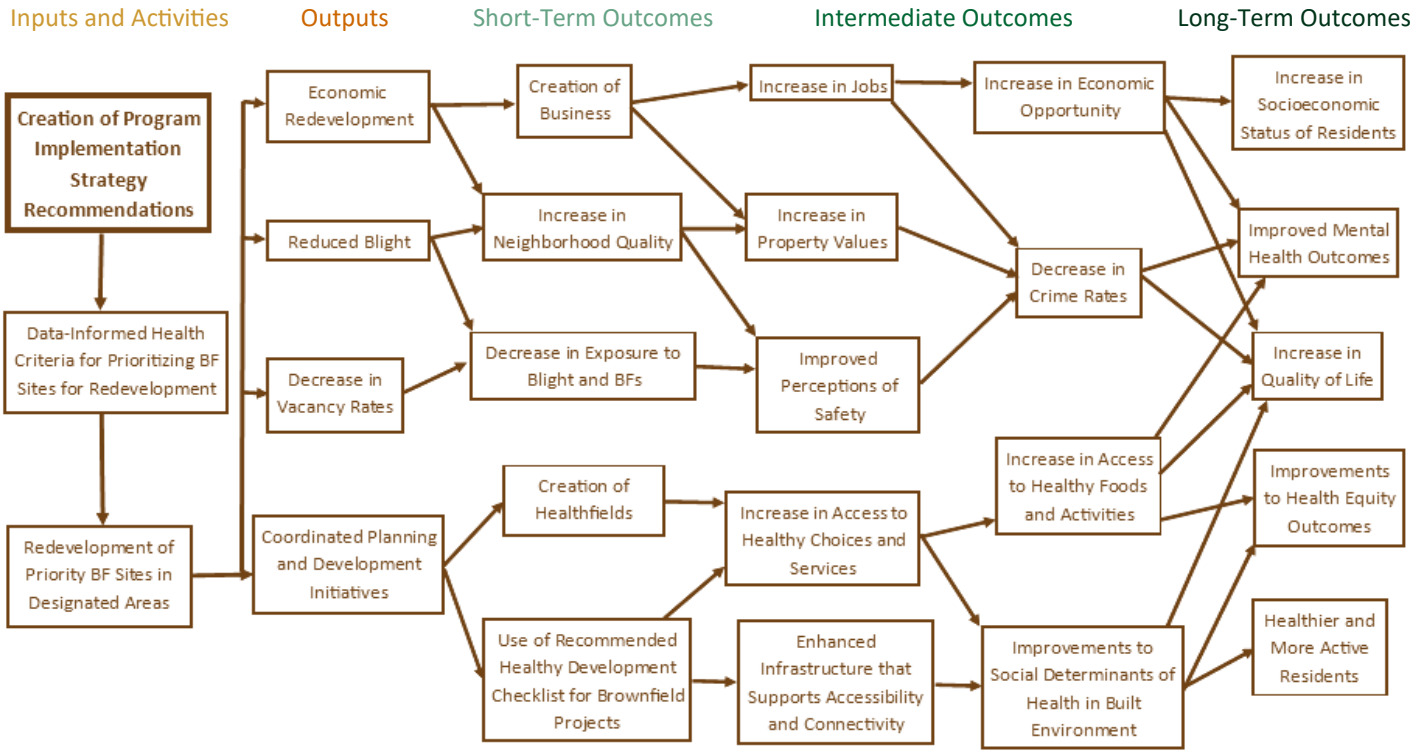
Table #5 lists the health impact categories that provided a framework for this HIA's data assessment. This HIA intends on adding value to the proposed Brownfield Program by assessing the major ways that programs like it can positively impact health and communities. The HIA Team finds that these health impact categories address these impacts, explain what outcomes to expect following program implementation, and reveal the indicators to track to assess program success.

Table #5: HIA Health Impact Category Chart

Health Impact Category	Significance	Opportunities of Brownfield Program	Indicators	Data Needed to Measure Impact
Public Exposure	Public exposure to brownfields and urban decay (blight) can increase risks of heart disease, asthma, reduced maternal and infant health, poor mental health, and other negative health outcomes	Reduce public's exposure to contamination and pollution	Health data, proximity of proposed brownfield areas to existing populations, public spaces, or water supply	Local hospital data, FL Health Charts data, GIS data
		Identify potential sources of brownfield contaminations and their health impacts	Land uses within proposed brownfield areas	Types of health outcomes from contamination exposure, City GIS, land uses in proposed brownfield areas
		Reduces number of people who are marginalized by brownfields	Concentration of vulnerable populations (i.e. children, low-income, minorities)	ACS FactFinder data, GIS data
Economic Redevelopment and Upward Mobility	Brownfields and vacant structures can prevent economic growth by creating negative perceptions of the neighborhood where they are located. This deters investors and developers from redeveloping certain sites for commercial use	Increase property values and tax revenues	Property values	County Property Appraiser data
		Reduce unemployment, poverty, and housing cost burden	Unemployment rates, poverty rates, cost burden levels, quantity of affordable housing	ACS FactFinder data, Shimberg Data Center
		Prioritize redevelopment to enable a sustainable workforce and to increase human capital	Educational levels, workforce employment, current industries in the City and their intensities	ACS Factfinder, County Economic Development Department data
Community Context and Quality	Community quality can be negatively impacted by brownfields and blight by reducing property values and enticing nefarious activity. This can lead to social and cultural isolation, reduced self-esteem, and reduced human capital	Eliminate blight to reduce crime and improve perceptions of safety	Vacancy rates, perceptions of safety	City Police, Pinellas Park CHNA Survey, County Property Appraiser data
		Use brownfield redevelopment to increase community assets that support health and equity	Public perceptions, obesity rates	Pinellas County HNA Survey, FL Health Charts
		Increase sustainability of a community by reducing code violations	Number of code enforcements	Neighborhood Services data
Built Environment	Brownfield Programs are development-intensive. They can employ development strategies to prioritize redevelopment of the built environment that actualizes City health and equity goals. This includes increasing accessibility, connectivity, placemaking, sustainability, and community quality	Increase access to opportunities to be physically active	Acreage of park space, mileage of trails	City GIS, City Leisure Services data
		Improvement of built environment through progressive planning strategies like Complete Streets and Smart Growth	Opportunities for brownfield redevelopment proposals to use progressive planning approaches	GIS Data, City Comprehensive Plan information
		Properly planned redevelopment for proposed brownfields in flood zones and areas prone to natural hazards	Flood zones or coastal high hazard areas	City GIS
		Improve access to community assets (grocery stores, health clinics, affordable housing)	Access to community assets, number of affordable housing units	City GIS, Pinellas Park CHNA survey, Shimberg Data Center

Logic Model

This HIA's Logic Model is informed by the intended actions that will follow the creation of the Brownfield Program with support from this HIA. Because of the scope of the Brownfield Program (city-scale) the desired outcomes are based off environmental, economic, and health benefits provided by brownfield programs that are affirmed in the Assessment.



Identifying Health Impact Indicators

The end of each health category is summarized by a table that lists evidence-based indicators that the data suggests will determine the impact of the Brownfield Program should City Council adopt this report's recommendations. These indicators reflect desired intermediate or long-term outcomes that have the potential to be actualized after the Program is implemented. However, these indicators do not relate to the monitoring and evaluation process that is focused on the impact of the HIA and the proposed Brownfield Program. The Monitoring and Evaluation Section details the indicators for that process, while the health impact indicators are general suggestions on ways to assess outcomes that are likely to occur based on the data presented in each health impact category. Table #6 explains the function of the criteria used to assess the feasibility of the identified indicators. The five criteria categories are: Likelihood, Magnitude, Distribution, Timing, and Strength of Evidence. The description of each criteria and its value set can be found in Table #6.

Table #6: Brownfield Program Health Impact Indicator Assessment Criteria

Criteria	*Description*	*Values*
Likelihood	Indicates the probability that the outcome that the indicator is anticipating is the desired outcome	High
		Moderate
		Low
Magnitude	Suggests the expected size that the impact being measured will have	High (County impacted)
		Moderate (City impacted)
		Low (Some communities impacted)
Distribution	Illustrates the distribution of the impact across demographic groups	Highly disproportionate impacts
		Moderate disproportionate impacts
		All groups impacted equally
Timing	Indicates the length of time expected for the impact to be made	Short-term
		Intermediate
		Long-term
Strength of Evidence	Indicates the strength of the evidence supporting why the proposed health/ equity impact is being assessed	Strong
		Limited
		Insufficient

Public Exposure

Literature Review

Relating brownfield exposure to health outcomes of vulnerable populations is necessary because brownfields can have a greater impact on populations in closer proximity to them than they do on others. Marginalized groups are made vulnerable to brownfield exposure by either the intentional or the unintentional placement of polluting land uses in or near their communities. Because of this, brownfield cases are synonymous with cases of environmental injustice. Environmental injustice can occur after "locating polluting facilities in low-income neighborhoods and communities of color [causes] people with marginalized identities [to] experience more asthma, a greater likelihood of heart attacks, even premature death" (Willis, B., 2018). When these facilities are shut down, they continue to plague communities as brownfields that may continue to be sources of pollution or blight that negatively impact human health. Therefore, environmental injustice and brownfields are inextricably linked, and the context for discussing brownfields issues revolves around issues of environmental injustice and urban revitalization (NEJAC, 1996).

Those who are more vulnerable to brownfield pollution are not just minority groups though, they include senior groups, children, those that are disabled, and those who are poor with few resources (Carroll, A., 2014). This is especially true for the poor, since the link between idle brownfield sites and poverty exist across the United States (Yacovone, K., 2016). Environmental injustices grounded by a disregard for low-income groups drive societal inequities and health inequities in a measurable way. The disadvantages that come with the deepening of these inequities are varied, but are costly and burdensome, like missing school or general economic opportunities due to illness, a cycle of poverty stemming from health care costs derived from brownfield exposure, and a lack of access to opportunity that creates generational hardship (Willis, B., 2018). Physical environments that exhibit environmental injustice issues have contributed to not only higher incidences of human disease and generational hardship for vulnerable groups, but also to urban decay, negative psycho-social impacts such as feelings of social isolation and depression, economic disincentive and disinvestment, and overall community disintegration (NEJAC, 1996). With brownfield exposure established as being similar to environmental injustice, it is clearer to see the connection between the built environment and the human, social, and economic health of a community, or social determinants of health, as they are known in the Health in All Policies approach (McIntyre, A. et al, 2013). People that are exposed to brownfields in their built environment (neighborhood, shopping center, or workplace) face more negative health and mental health outcomes.

Research has shown that developing idle lots (brownfields) can significantly reduce depression by addressing feelings of hopelessness, restlessness, and worthlessness (Pricop, L., 2018) that stem from one's personal reflections of their built environment or from their inability to enjoy their community due low perceptions of safety. Further, while brownfields reinforce a community's feelings of despair (Yacovone, K., 2016) redevelopment of these sites into green spaces can increase "access to green spaces [which] can reduce health inequalities, improve well-being, and aid in treatment of mental illness. Research also suggests that physical activity in a natural environment can help remedy mild depression and reduce physiological stress indicators" (Black, C., 2019). This makes redevelopment, specifically healthfield redevelopment, an ideal solution for reducing brownfield exposure and their negative health equity impacts. Healthfields are the reuse of brownfields into projects that address and resolve health disparity by increasing access to healthy infrastructure. "Healthfields redevelopment can improve local access to care and reduce health disparities through redevelopment. [Redevelopment] can also create jobs and bring other benefits" (2019). Acting as a response to environmental justice issues, healthfields usually are projects that provide health care, green spaces, or access to healthier food choices (Ballogg, M. 2015).

Consequently, the vision of projects like healthfields that aim to resolve environmental injustice is the development of a holistic, bottom-up, community-based, and unifying model for achieving healthy and sustainable communities. To this end, brownfields redevelopment must be linked to helping address a broader set of community needs and goals: social equity, environmental health, economic security, ecological sustainability, and mental health (NEJAC, 1996). While green spaces can improve health by facilitating physical activity using safe spaces for biking and walking, social interaction, relaxation, and a peaceful refuge from noise (Black, C., 2019), it is critical that residents play a role in the development and political process that determine the revitalization of their community. Instead of a park, the community may need a grocery store, a dentist's office, or day care services. Because environmental injustice encompasses very clearly the complex relationship between issues linked to brownfields, such as residential segregation, economic disinvestment, inaccessibility to health care, educational disadvantage, and a lack of employment opportunity (NEJAC, 1996), complex solutions that include resident input are necessary.

Existing Conditions

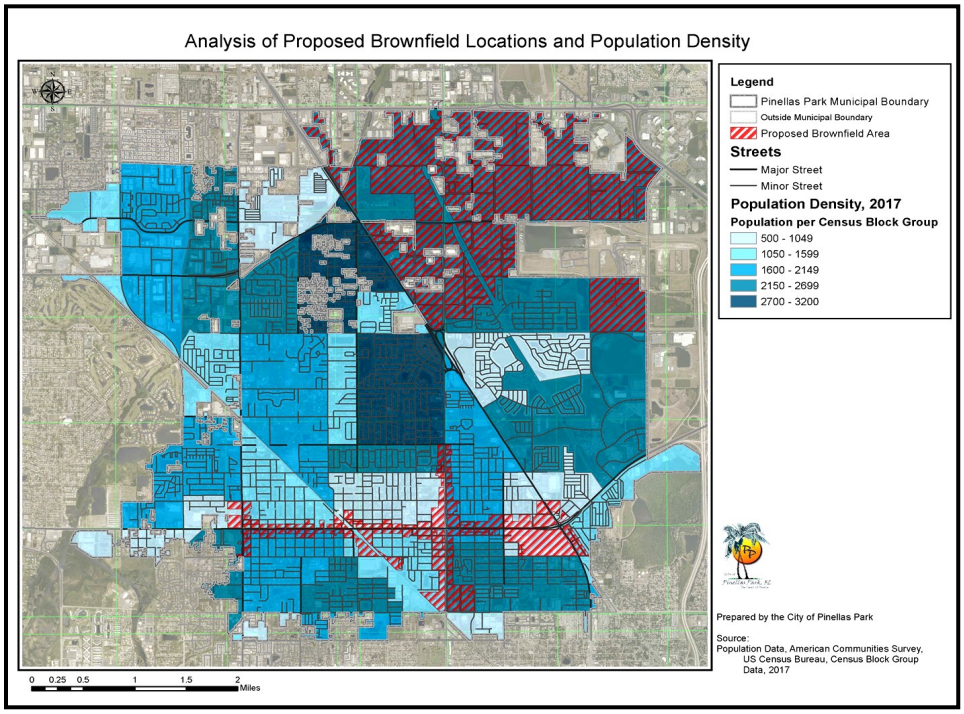
Public Exposure: Vulnerable Populations

Table #7: Percent of Pinellas Park Residents Living with a Disability (2013-2017)				
5 to 17 Years	*18 to 34 Years*	*35 to 64 Years*	*65 to 74 Years*	*75+ Years*
7.70%	8.30%	18.70%	26.30%	47.70%
Source: 2013-2017 American Community Survey 5-Year Estimates: Disability Characteristics				

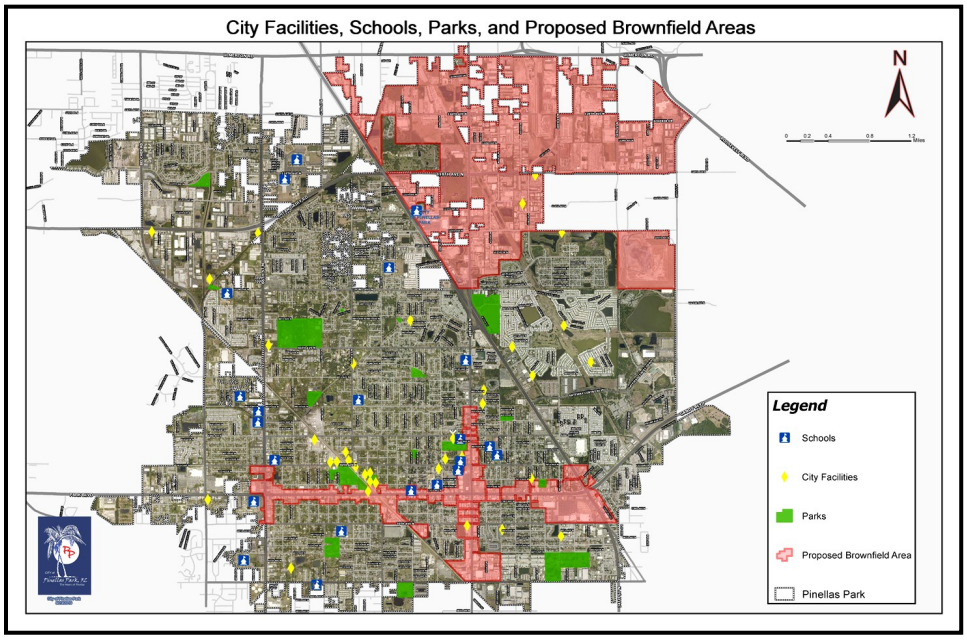
Table #8: Median Household Incomes in Pinellas Park (2013-2017)	
Income Level	Percent
Less than $14,999	14.20%
$15,000 - $24,999	13.90%
$25,000 - $34,999	13.10%
$35,000 - $49,999	16%
$50,000 - $74,999	18.50%
$75,000 - $99,999	10.90%
$100,000 - $149,000	9.90%
$150,000 or more	3.60%
Source: 2013-2017 ACS, 5-year Narrative Profile for Pinellas Park	

According to the 2013-2017 American Community Survey (ACS) 5-Year Narrative Profile for Pinellas Park (ACS 5-Year Profile, 2019), the City has a population of 51,788 with the median age being 44.6 years old. Minority groups, low-income groups, children, disabled persons, the elderly, and residents who do not own an automobile are considered especially vulnerable to the negative impacts of brownfield exposure. According to the 2013-2017 ACS Pinellas Park Profile, 24% of households had one or more members under the age of 18 and 35% of households had one or more persons over the age of 65. Similarly, Table #7 illustrates the significant disability characteristics of Pinellas Park residents from 2013-2017, proving that one in five residents aged 35 to 64 years old have a disability and one in four residents from ages 65 to 74 years old will have a disability. Contrarily, according to the Profile most of Pinellas Park residents drive a car as a their main transportation method (92.1%) while only 1.2% used public transportation and 0.8% walked. So, overall carless individuals are less prevalent as a vulnerable group compared to youths, seniors, and the disabled. Similarly, the Profile described the racial composition of the City as being primarily White (80%), with low percentages of African-American (5.4%), Hispanic (10.9%), or Asian populations (8.7%), so it is not feasible to identify minority groups as a vulnerable group in this assessment.

The 2013-2017 ACS Pinellas Park Profile mentions income levels of residents, see Table #8 to find that while about 43% of residents make $50,000 or more annually, 41% of residents make less than $34,999. Lower incomes appear to be stratified to minority groups: the Pinellas County 2019 Equity Profile claimed that African Americans and Hispanics in Pinellas County suffered from higher poverty rates than White residents did from 2010 to 2016, with African Americans at a 29% poverty rate, Hispanics at a 22% poverty rate, and Whites at 12% poverty rate in the year 2016. This is likely linked to the fact that median household incomes for African Americans ($30,695) was only 65% of what White residents earned ($47,546) in the County according to the Pinellas County 2018 Community Health Assessment (CHA). The report continues to claim that those representing “Some Other Race” in the assessment earned 78% of what White residents earned. This indicates a sizeable inequity in household incomes by race at the County scale.



Map #3: Population Density Analysis



Map #4: Analysis of the Proximity of Perceived Brownfields to Public Spaces

Gauging population density in and around our proposed brownfield areas can also determine intensity of brownfield exposure. The Northeast Brownfield Area is densely populated, which could mean that a larger percent of the population is exposed to brownfields in the area. The Redevelopment District is less dense than the Northeast Brownfield Area aside from its southeast end. However, the Redevelopment District is closer to more public schools, parks, and City facilities according to Map #4. This shows that the public could be vulnerable to brownfield contamination while utilizing public services. In Map #4, schools and City facilities occur along the North-South corridor 49th Street and the East-West corridor Park Boulevard. Many City parks are near Park Boulevard while only one is close to the Northeast Brownfield Area along with just one school and three City facilities near it. Brownfield redevelopment in and near the Redevelopment District has the opportunity to reduce brownfield exposure in public places, and with the amount of public facilities near it redevelopment can also better connect parks, connect residents to schools, improve infrastructure and community amenities, and provide neighborhood services to children and families who utilize the area.

Existing Health Conditions

Brownfields are usually old or abandoned industrial sites, factories, warehouses, gas stations or oil storage facilities, dry cleaners, landfills, or golf courts (Brownfield, 2017) that once required the use of chemicals in some way for business purposes. Due to the use of chemicals on the site, a brownfield may harbor contaminants capable of polluting nearby soil, air, and ground water. Brownfields can occur in rural, industrial, and urban places near neighborhoods and communities (Minnesota Brownfields, 2018) where residents can be exposed to their pollution. Identifying the types of land uses and potential contamination sources that occur in our proposed designated brownfield areas (industrial plant, auto service station, dry cleaners, etc.) alongside the health impacts associated with those land uses supports an assessment of health outcomes in the Pinellas Park area that may have derived from brownfield exposure. Subsequently, Table #9 outlines the chief land uses exercised in the two proposed brownfield areas alongside the typical pollutants and health impacts associated with those uses in order to reveal how Pinellas Park residents may experience brownfield exposure.

Table #9 describes the main land uses within our designated areas that are most likely to function as perceived brownfields and each land uses' potential pollutants, contamination sources, and the related health risks. The survey of the land uses in each designated brownfield area was done using satellite imagery, City Land Use maps and Business Tax Receipts (BTR's), and HIA Team member input. Prominent land uses were recorded and tracked in Table #9, such as manufacturing, industrial, and commercial food production. "Possible Contamination Sources" reflect the purpose or use of the land that was surveyed. This data reveals the connection between exposure to perceived brownfields and health outcomes. For instance, a site that is used for manufacturing and distributing plastic products may be polluting the surrounding area with acetone, a solvent used to dissolve substances and make plastics. Acetone has been linked to causing asthma and lung disease to those who suffer from long-term exposure to it. While gas stations and commercial food production are the main uses of perceived brownfields in the Redevelopment District, industrialized uses, manufacturing, dry cleaning, and food production is predominant in the Northeast Brownfield Area. Some of the health impacts related to the above mentioned uses are cancer, infant and maternal health, cardiovascular (heart) disease, asthma, respiratory disease, and damages to the nervous system. However, due to limits in available health data, these are the only outcomes that can be investigated in this assessment.

From Brownfield to Healthfield: Brownfield Reuse Supporting Healthy Food Access

Healthfields are a tool cities can use to redevelop brownfield land into more purposeful, health-focused projects. A model healthfield project can be found in Clearwater, Florida on what was once an automobile dealership. The critical need for a community grocery store that could help reduce disparities in access to healthy food choices led decision makers to carefully consider the fate of the former automobile dealership. The site was a car lot for 45 years and resulted in many blighted buildings, underground storage tanks, and a deep environmental stigma. To reinvigorate the site, Clearwater used State Brownfield Appropriation, a state Brownfield Loan Guarantee, and developer investment to facilitate redevelopment. With these tools the car lot was repurposed into nearly 45,000 square feet of housing and retail space. The site now boasts a Publix that residents can purchase healthy, nutritious foods from. The project created a total of 125 jobs as well, proving the magnitude of health and equity benefits derived from healthfield redevelopment.

Table #9: Health Risks Related to Uses of Perceived Brownfields in Pinellas Park

Land Use	*Possible Contaminant Source(s)*	*Pollutant(s)*	*Health Risks from Exposure*
Fuel Industry	Gasoline, Diesel, Propane	Ammonia, Methane, Benzene, Carbon Dioxide, Crude Oil, Volatile Organic Compounds (VOCs), Nitrogen Oxides, Toluene	Nausea, Headache and Dizziness, Harmful Effects to Nervous System, Cancer, Exposure to Car Exhaust, Respiratory Disease, Asthma, Cardiovascular (Heart) Disease, Learning and Development Disabilities
Industry/ Factories	Refrigeration, Air Conditioners, Metal Production	Chlorofluorocarbons (CFCs), Perfluorooctine Acid (PFOA), Polybrominated Diphenyl Ethers (PBDE's), Diesel, Mercury, Bisphenol A (BPA), Polyvinyl Chloride (PVC), Styrene	Skin Cancer, Reproductive Health Issues, Cardiovascular Disease, Learning and Development Disabilities, Poor Mental Health
Auto Service Stations	Auto Repair Shops, Tire Lots, Auto/Boat Yards	Diesel, Benzene, Solvents, Carbon Dioxide, Carbon Monoxide, Chromium, Ethylene Glycol, Methanol, Nitrogen Oxides, Volatile Organic Compounds (VOCs), Ozone	Cancer, Asthma, Respiratory Disease, Increased Blood Pressure, Harmful Effects to Reproductive Health, Learning and Development Disabilities, Cardiovascular Disease, Damage to Nervous System, Birth Defects,
Golf Course	Herbicides and Pesticides	Endocrine Disruptors, Ammonia, Arsenic	Harmful Effects to Reproductive Health, Learning and Development Disabilities, Birth Defects, Cancer, Damage to Nervous System, Asthma, Respiratory Disease, Cardiovascular Disease
Dry Cleaner	Cleaning Solvent	Perchloroethylene (PERC), VOCs	Nausea, Loss of Coordination, Eyes, Nose and Throat Irritation, Harmful Effects to Nervous System, Cancer
Shooting Range	Stray Ammunition	Lead, Copper	Irritation of the Eyes, Nose, and Throat, High Blood Pressure, Anemia, Headache, Reduced Memory, Tremors, Cancer, Nerve Disorders, Harmful Effects to Reproductive Health, Birth Defects, Learning and Development Disabilities
Manufacturing	Construction Products (i.e. drywall, tile, steel framing), Paint, Metal Products, Plastics, Rubber, Glass	Ammonia, Acetone, Arsenic, Diesel, Methanol, Persistent Organic Pollutants (POPs), Solvents, Lead, Cadmium, Mercury, Endocrine Disruptors, Bisphenol A (BPA), Phthalates, Styrene	Headaches and Dizziness, Nausea, Loss of Consciousness, Respiratory Disease, Cardiovascular (Heart) Disease, Damage to the Nervous System, Reproductive Health Issues, Damage to the Immune and Neurological Systems, Learning and Developmental Disabilities
Commercial Food Cooking/ Production	Cooking using Oil, Vegetables and Nuts, Plastic Bottles, Metal Food Can Linings, Fish and Shellfish, High Temperature Cooking	Cadmium, Chromium, Endocrine Disruptors, Mercury, Persistent Organic Pollutants (POPs), Polycyclic Aromatic Hydrocarbons (PAHs),	Throat and Nose Irritation, Diarrhea, Cancer, Lung Damage, Kidney Disease, Asthma, Respiratory Disease Rates, Learning and Development Disabilities, Reproductive Health Issues, Birth Defects
Waste Disposal/ Wastewater Treatment	Dumpsters and Landfills, Wastewater, Grease and Oils, Burning Trash	Ammonia, Methane, Benzene, Methanol	Damage to the Respiratory System, Cancer

Source: "Chemicals and Contaminations". Tox Town. (2017). Retrieved from https://toxtown.nlm.nih.gov/chemicals-and-contaminants

Table #10: Death Counts from Specified Brownfield Health Outcomes in Pinellas Park from 2014-2018										
Census Tracts	*Census Tract Acreage*	*BF Acreage per Census Tract*	*Alzheimer's Disease*	*Anemia*	*Parkinson's Disease*	*Respiratory Disease*	*Cancer*	*Hypertension*	*Heart Disease*	*Diabetes*
Proposed Northeast Brownfield Area Census Tracts and Adjacent Census Tracts										
245.12	3168	1682	4	1	4	18	54	4	53	9
245.13	1299	160	11	2	7	31	102	2	119	10
245.10	659	3	3	0	0	8	13	0	12	7
245.05	1325	0	11	0	1	21	93	10	84	15
249.05	640	0	12	0	2	33	82	4	68	6
Area Total	7091	1845	41	3	14	111	344	20	336	47
Proposed Redevelopment District Brownfield Area Census Tracts and Adjacent Census Tracts										
249.02	1069	234	4	1	1	41	73	0	85	21
249.01	838	145	7	0	1	25	60	3	54	9
249.06	474	68	6	1	0	15	47	4	47	9
249.04	851	33	3	1	2	14	37	1	38	11
246.01	998	15	0	1	1	17	44	2	42	9
250.04	1133	15	8	2	4	34	77	5	76	12
250.14	928	3	6	1	1	22	48	3	37	5
247.01	397	0	5	0	1	30	56	4	67	15
248.01	666	0	4	0	1	19	67	2	51	12
248.03	320	0	6	0	1	16	42	1	33	3
250.09	966	0	1	0	0	7	38	0	24	4
250.12	1005	0	9	0	4	16	80	6	55	9
Area Total	9645	513	59	7	17	256	669	31	609	119
Combined Area Total	16736	2357	100	10	31	367	1013	51	945	166

Source: FLHealthCHARTS Community Map. Florida Department of Health Bureau of Vital Statistics. (2019). Retrieved from http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=ChartsMaps.chartsMapper&rdRequestForwarding=Form

To assess potential health impacts from potential City brownfield sites, Table #10 compares health outcomes from 2014-2018 by census tract. See Map #9 in the Appendix to reference the location of listed census tracts. Each census tract is labeled with the amount of acreage of perceived brownfield sites is within it and the tracts are ordered in the table by this estimate. Table #11 has a similar setup to illustrate maternal and infant health impacts caused by brownfield exposure. Table #10 shows death counts for each tract for diseases identified in Table #8 as being possibly caused by brownfield exposure: nervous system diseases such as Alzheimer's disease, anemia, and Parkinson's disease, respiratory disease, cancer, and cardiovascular disease such as hypertension, heart disease, and diabetes.

First, this data shows that the leading causes of death in the City can stem from exposure to brownfield contaminants: cancer, heart disease, and respiratory disease. Because of this, exposure to brownfield contamination or pollution is a key health impact category we will assess to better define public health recommendations. For anemia, hypertension, and Parkinson's disease death counts are lower, but it is apparent that tracts impacted by perceived brownfields are more likely to exhibit worse health outcomes than those tracts that are not impacted. However, respiratory disease, cancer, heart disease, and diabetes death counts are seemingly high across all tracts. Due to the high presence of perceived brownfields in each tract containing and/or bordering a perceived brownfield, it can be assumed that public exposure to contaminants listed in Table #9 may have led to the high death counts observed. It also suggests that proximity to impacted census tracts can have health implications.

Table #11: Specified Brownfield Maternal and Infant Health Outcomes in Pinellas Park from 2014-2018						
Census Tracts	*Census Tract Acreage*	*BF Acreage per Census Tract*	*Counts for Births to Mothers Under the age of 20*	*Counts for Preterm Births*	*Count of Babies Born at a Low Birth Weight*	*Count of Infant Death*
Proposed Northeast Brownfield Area Census Tracts and Adjacent Census Tracts						
245.12	3168	1682	3	10	7	0
245.13	1299	160	4	7	3	0
245.10	659	3	13	19	8	3
245.05	1325	0	7	37	26	1
249.05	640	0	20	41	24	2
Area Total	7091	1845	47	114	68	6
Proposed Redevelopment District Brownfield Area Census Tracts and Adjacent Census Tracts						
249.02	1069	234	20	49	45	4
249.01	838	145	18	37	23	1
249.06	474	68	11	26	21	1
249.04	851	33	13	26	12	1
246.01	998	15	21	32	20	0
250.04	1133	15	18	25	23	1
250.14	928	3	10	37	33	5
247.01	397	0	11	20	19	1
248.01	666	0	6	14	12	0
248.03	320	0	10	14	8	1
250.09	966	0	8	17	13	1
250.12	1005	0	9	24	20	3
Area Total	9645	513	155	321	249	19
Combined Area Total	16736	2358	202	435	317	25

Source: FLHealthCHARTS Community Map. Florida Department of Health Bureau of Vital Statistics. (2019). Retrieved from http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=ChartsMaps.chartsMapper&rdRequestForwarding=Form

Table #11 is similar to Table #10 except here we are assessing maternal and infant health. Conditions that were assessed were counts of births to underaged mothers, counts of preterm births, counts of babies born at low birth weights, and counts of infant deaths, not including neonatal deaths. For counts of births to underaged mothers, census tract 249.05 is the only unaffected tract with a high count, aside from this the majority of the counts are higher in affected tracts than they are in unaffected tracts. Counts for preterm births and for babies born at low birth weight seem high across the board though it should be noted that in the column for "Low Birth Weight Counts" there appears to be higher counts for unaffected tracts that those in affected tracts. The same can be said for counts measured for infant deaths. This shows the impact that proximity to a perceived brownfield can have on maternal health.

A health outcome not listed in the tables is asthma. Asthma is a prime example of a respiratory disease that has been linked to exposure to brownfield pollution. According to the Florida Department of Health's Environmental Public Health Tracking Data Explorer, in 2016 Pinellas Park residents made 256 visits to emergency rooms due to asthma complications and 31 were hospitalized. Likewise, in 2018, BayCare's Emergency Department received 33 Pinellas Park residents because of issues with asthma, indicating there is still a need in the community. Also, in the 2019 Community Health Needs Assessment (CHNA) Survey that was conducted by the Florida Department of Health and local not-for-profit hospitals in Hillsborough, Pasco, Pinellas and Polk counties, residents' responses captured similar data. Of the 234 residents who live in Pinellas Park zip codes (33781, 33782), 37 responded that children in their homes had faced allergy complications before, and 20 responded that their children had faced issues with asthma.

Existing Mental Health Conditions

Table #12: Social and Mental Health in the Tampa Bay Area 2016-2018 *(3-Yr Rate per 100,000)*				
Indicators	*Pinellas County*	*Hillsborough County*	*Manatee County*	*Pasco County*
Alcohol-Suspected Motor Vehicle Crashes	65.8	68.0	47.9	45.7
Hospitalizations for Mental Disorders	1,259.5	685.0	916.8	1189.3
Suicide (Age-Adjusted Death Rate)	18.7	12.9	17.0	18.9
Source: FL Health Charts County Health Profile				

Table #12 was developed to investigate mental health conditions to assess any connections perceived brownfields may have on local mental health outcomes. Compared to neighboring counties, Pinellas County exhibits very high hospitalizations from mental disorders and suicides counts, with the exception of Pasco County. It is possible that exposure to urban decay brought on by perceived brownfields and other forms of blight are causing a pattern of poor behaviors as well as poor mental health outcomes. Mental health has proven to be a priority area for City residents according to Pinellas Park CHNA Pinellas Park survey responses, which showed that when asked to rank the top health problems that are most important to address to improve the health of their community, Pinellas Park residents responded that “Mental health problems including suicide” was resident’s number one health problem.

Further, the nonprofit called Personal Enrichment Through Mental Health Services (PEHMS) which provides emergency and crisis mental health services has received an increase in its annual admittance of Pinellas Park residents since 2016 (307 residents admitted), with 337 residents being admitted in 2017 and 334 being admitted in 2018. These numbers indicate a need for solutions addressing mental health and access to reliable mental care and healthcare services. This data was retrieved from PEMHS staff.

According to that CHNA survey, only 27% (n=54)of City residents claimed that the health of the community that they lived in was healthy. The majority (n=92) believed their communities to be somewhat healthy and 13% (n=26) felt it was completely unhealthy. Similarly, the 2013-2017 ACS Pinellas Park Profile states that 86.3% of residents had health insurance and 13.7% did not have health insurance coverage from 2013-2017. During this time, the percent of children under the age of 18 with no health insurance coverage was 6.1%. Without the cushion of health insurance to protect one in the face of a health crisis, it is difficult to truly feel secure in one’s health. Another point to consider is that the Pinellas County 2018 CHA results found that nearly 25% of respondents did not have one person in their life that they think of as a personal doctor or health care provider, meaning there are a number of Pinellas Park residents who do not have stable, long-term medical care through someone they trust.

Table #13: Health Impact Indicators for Public Exposure Assessment					
Indicator	*Likelihood*	*Magnitude*	*Distribution*	*Timing*	*Strength of Evidence*
Brownfield projects are executed according to health-focused program guidelines	High	High	Moderate Disproportionate Impacts	Intermediate	Strong
Proximity of designated brownfields to the public and "vulnerable groups" are reduced	Moderate	Moderate	Moderate Disproportionate Impacts	Long-Term	Strong
Decrease in negative health outcomes related to brownfield exposure (reduced deaths from heart disease, lung disease, nervous system disorders)	Low	Low	Highly Disproportionate Impacts	Long-Term	Limited
Decrease in negative maternal health outcomes related to brownfield exposure (i.e. reduced preterm births, low weight births, infant mortality rates)	Low	Low	Highly Disproportionate Impacts	Long-Term	Limited
Decrease in negative mental health outcomes related to brownfield exposure (number of hospitalizations for mental disorder, suicide rates)	Moderate	Moderate	Moderate Disproportionate Impacts	Long-Term	Strong

Economic Redevelopment and Upward Mobility

Literature Review

When the Florida Brownfield's Redevelopment Act was established in 1997 one of the main goals of the legislation was to "create financial and regulatory incentives to encourage voluntary cleanup and redevelopment of [brownfield] sites" to create new business and spur economic growth. Because of this and the fact that the land uses permitted in the designated brownfield areas are focused on economic activity, it can be assumed that brownfield redevelopment in the City will boost economic growth and job creation. This makes Economic Redevelopment and Economic Mobility a vital health impact category for this HIA, especially since the 2019 Pinellas County Equity Profile showed that from 2000 to 2016 growth in minimum wage jobs for Pinellas County was -15% and growth in high wage jobs was -3%. Economic redevelopment efforts can change these numbers and also address issues of poverty in Pinellas Park. However, while economic growth with business and job creation is one of the most "visible and measurable" benefits of brownfield remediation, the need to leverage regulatory and development incentives is necessary for developers to offset the costs and liabilities related to remediation, this is especially true if contamination has occurred (Minnesota Brownfields, 2019).

"According to the EPA, it costs an estimated average of $602,000 to clean up a brownfield" (Todd, J. H., 2014). Aside from potential cleanup, developers or business owners must cover costs associated with a longer project timeline to accommodate due diligence, working with multiple stakeholders and previous property owners, costs for demolition and construction, as well as the negative perceptions of the site that may hinder its potential (Minnesota Brownfields, 2019). Also, "because so many of these facilities operate in larger retail complexes, the establishment of liability between the entity operating the facility and the owner of the land on which it operated may require a legal resolution before cleanup can begin" (Cotton, P., 2019). Liability issues can also complicate the redevelopment of brownfield sites. However, thanks to the numerous federal, state, and local incentives available for redevelopment, brownfield sites can be attractive investment opportunities (Greene. R.,B., 2016) for developers and property owners. See Table #25 in the Appendix for an outline of available funding, technical assistance, and potential incentives the City can employ to attract developers, incite redevelopment, and increase job opportunities.

While regulatory and development incentives do play a role in attracting investment for brownfield remediation, the general nature of brownfield sites are also advantageous. Brownfields tend to have lower property values, and tend to be located in areas already developed and surrounded by services and workforces, or located in a prime real estate location. (Minnesota Brownfields, 2019). For example, gas stations and dry cleaners "proximity to retail, highways and residential areas make for highly sensible redevelopment in many communities. Unlocking the value of these coveted locations makes the cleanup equation much easier to solve for developers" (Cotton, P., 2019). Also, the smaller size of gas stations makes them a less difficult task to repurpose.

Conducting Brownfield Remediation without Losing Valuable Business

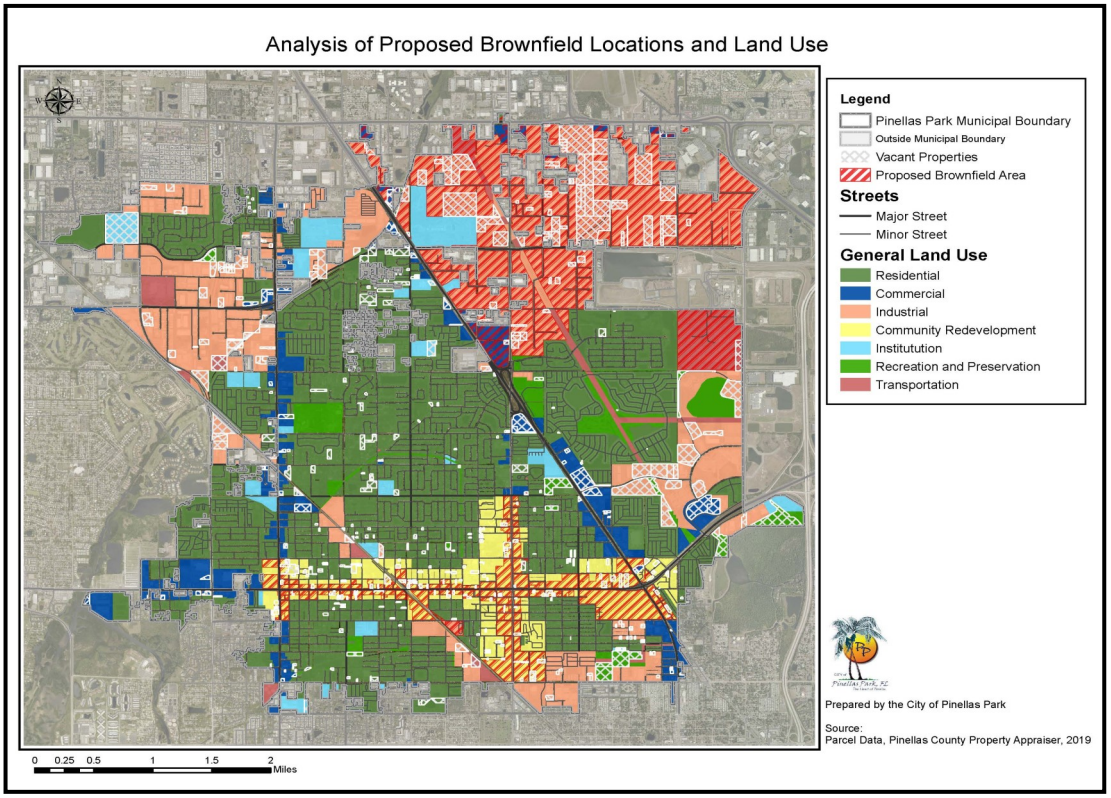
Tampa resident Jerry Borseth leased the vacated Southern Solvents warehouse for his painting business AAA Diversified Services in 1990. The warehouse site was identified as a Superfund site, and in 1998 the EPA began working with Borseth as a lessee to enable cleanup activities at the site while allowing Borseth to continue operating his business. The EPA originally identified the site as a Superfund site in 1988 after the FDEP discovered that perchloroethylene (PCE) and trichloroethylene (TCE) that Southern Solvents had been distributing to Tampa's dry cleaning industry, was contaminating on-site wells. Spills from aboveground tanks and supply trucks had led to both soil and groundwater contamination. Since the site was placed on the Superfund program's National Priorities List in 2000, the EPA has been conducting ongoing cleanup activities to target removing the PCE and TCE from the site and conducts groundwater monitoring as well. This is done all while AAA Diversified Services is still open for business, showing that remediation efforts that preserve natural resources and protect public health can enable continued site use and economic activity.

Comparably, the benefits of repurposing abandoned manufacturing and chemical plants or factories such as the sites within the Northeast Brownfield Area are grander than the variety of problems they may present with potential contamination due to the value of their existing structure. “The image of an abandoned factory is not just the poster child for brownfields; it is also the central image of economic decline for a once-thriving area. Redeveloping these spaces, central to so many communities, can produce innumerable social benefits” (Cotton, P., 2019). This unique architecture and design of factories and plants have the potential to be repurposed into mixed-use space, loft apartments, corporate headquarters, or for another type of manufacturing (Brownfield Listings, 2015). The unique character and history of the structure can also be used for economic redevelopment and placemaking projects that tie the past to the present, weaving a more place-based cultural fabric for the community (Robiglio, M., 2016). Also, these sites tend to have the advantage of already being tied into existing roads, rails, ports and utilities in ways that may not be replicable even in new construction on a greenfield site (Cotton, P., 2019).

Overall, benefits associated with economic development projects on brownfield sites are the reuse of already existing structures which saves money and time, business creation, job creation and improved economic opportunity, and increases in tax revenues. (Minnesota, 2019). These economic gains ultimately lead to an increase in human capital and improved socioeconomic conditions (McIntyre, A. et al, 2013) that allow households and communities to remain stable through both fair and extreme socioeconomic conditions. Further, redevelopment can be prioritized to fill gaps in the local supply of neighborhood services that support community health, such as food banks, health clinics, shelters and pet shelters, public safety facilities, parks, and grocery stores (Carroll, A., 2014).

Existing Conditions

Economic Redevelopment Opportunities



Map #5: Analysis of Potential Brownfields Sites and their Land Uses

According to the Pinellas Park GIS staff, there are 648 vacant properties in the City, and Map #5 shows that many of the larger vacant sites are in the Northeast Brownfield Area and are connected. This presents an opportunity for large-scale brownfield projects. Map #5 outlines the type of redevelopment that is permitted in our proposed brownfield areas, which are listed in Table #14. According to the map the Redevelopment District is mainly designated for single-family, manufacturing, and commercial use, and the Northeast Brownfield Area mainly includes industrial and commercial uses.

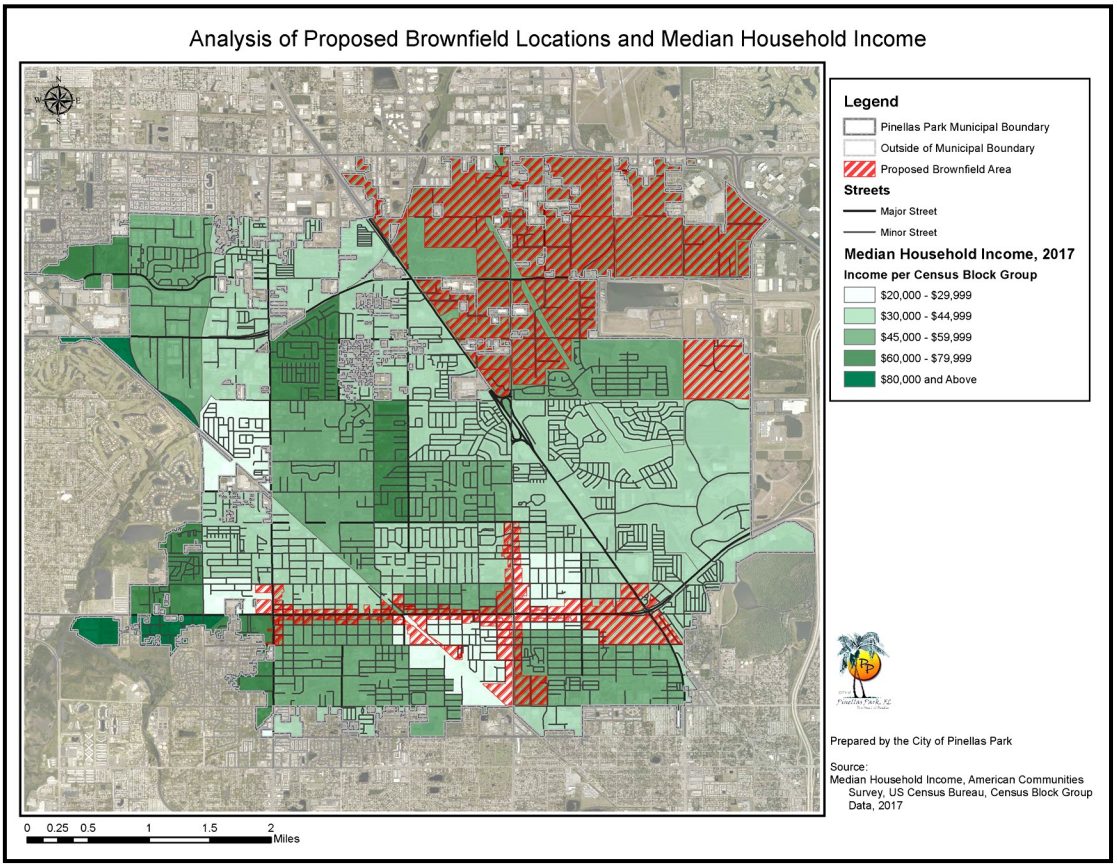
Table #14: Designated Brownfield Area Land Uses and Permitted Uses		
Designated Area	*Land Uses*	*Primary Uses*
Proposed Redevelopment District	Commercial Retail, Manufacturing , and General Housing	hotels, shelters, offices, financial institutions, personal services, recreational and open spaces, community facilities, day cares, medical and dental offices, public educational facilities, churches, special needs treatment facilities
Proposed Northeast Brownfield Area	Industrial, Heavy Commercial, Light Commercial	hotels, art galleries, restaurants, retail, day cares, research and development, wholesale merchandise sales, radio and TV broadcasting, auto service stations and dealerships, machinery manufacturing and repair, general manufacturing, pharmaceutical production, manufacturing of medical equipment, utilities, carpentry shops and contractor offices, race tracks, car washes, financial institutions, print shops, offices, restaurants, retails, shopping centers, lounges, multifamily and single-family housing, storage, food production, medical and dental offices, health spas, adult entertainment, outdoor amusements, recreation and open space, veterinary clinics, community facilities, day cares, homeless shelters, trade schools, churches, medical marijuana treatment centers, plant nurseries

Table #15 lists the percentage of workforces by industry in Pinellas Park. Those industries that engage higher percentages of the Pinellas Park workforce indicate the type of work that is most suitable and desirable to the current workforce, and thus can be considered ideal industries to target for redevelopment projects. According to the data, "Educational services, health care, and social assistance" is the largest workforce at 21.2%. This industry if expanded through brownfield remediation would have positive public health and equity impacts. The next largest industries are Retail Trade (12.8%), Professional, Scientific (11.4%), Arts and Entertainment (11%) which if expanded can make the City a bigger leader in the cultural and fine arts sphere, and then Manufacturing at (10.2%).

Table #15: Percent of Civilian Workforce by Industry in Pinellas Park, FL (2013-2017)	
Industry	Percent
Educational services, health care and social assistance	21.20%
Retail Trade	12.80%
Professional, scientific	11.40%
Arts, entertainment	11.00%
Manufacturing	10.20%
Finance, insurance, real estate	7.20%
Construction	7.00%
Other service not including public sector	6.00%
Transportation, warehousing, utilities	4.70%
Public sector	4.10%
Wholesale trade	2.50%
Information	1.30%
Agriculture, forestry, fishing, hunting, mining	0.60%
Source:2013-2017 ACS, 5-year Narrative Profile for Pinellas Park	

Poverty Rates and Neighborhood Blight

Map #6 illustrates that the Northeast Brownfield Area overlays a region largely dominated by households making $45,000 to $60,000 in annual median income. The high-moderate incomes here can attract developers seeking a middle-class clientele and support a wider range of markets. The region surrounding the Northeast Brownfield Area is characterized by a lower income group, so it may be possible that the presence of perceived brownfields are constituting a blighting factor in the area. The situation is somewhat similar for the Redevelopment District however the lower-income class is within the area and is closer to the center of the proposed brownfield area. Given the fact that CRAs are designated in blighted areas needing intensified redevelopment strategies, this is expected, but the presence of the high-moderate median incomes existing in the proposed brownfield area can make it attractive to developers same as a the Northeast Brownfield Area.



Map #6: Analysis of Median Household Incomes

Because blight, or urban decay, and poverty are often linked, it is helpful to assess poverty rates. Racial inequities in income levels and poverty rates which were discussed in the Public Exposure health impact category may be remedied by an increase in job and economic opportunity that follows the creation of a brownfield program. According to the 2013-2017 ACS Pinellas Park Profile, nearly 40% of residents have earned their High School Diploma or equivalent. The report further claimed that 21% of residents had completed some college, and nearly 20% hold a degree in higher education. Despite this capacity of human capital, lag in job growth allows impacts of poverty to persist. Poverty has impacts on children and the elderly, two populations that are vulnerable to brownfield exposure. The data shows that in 2017 nearly 18% of children living in Pinellas Park were living below poverty and nearly 12% of people 65 years old and up were living below poverty. These economic conditions burden these population's opportunities, such as affording quality housing, medical emergencies, and other basic needs.

Table #16: Poverty Rates in Pinellas Park

Indicator	*Percent*
People in Poverty	15.20%
Children under 18 Years Old Below Poverty	17.90%
People 65+ years old and Below Poverty	11.70%
Source: 2013-2017 ACS, 5-year Narrative Profile for Pinellas Park	

Table #17: Health Impact Indicators for Economic Redevelopment and Upward Mobility Assessment					
Indicator	*Likelihood*	*Magnitude*	*Distribution*	*Timing*	*Strength of Evidence*
Funding or regulatory incentives have been granted to brownfield project proposals	High	Moderate	Moderate Disproportionate Impacts	Intermediate	Strong
New businesses and business expansion has been derived from brownfield redevelopment	High	High	Moderate Disproportionate Impacts	Intermediate	Strong
Jobs are being created by brownfield projects	High	Moderate	Moderate Disproportionate Impacts	Intermediate	Strong
Property values in and surrounding proposed brownfield areas are leading to increased tax revenues for the City	Moderate	Moderate	Highly Disproportionate Impacts	Long-Term	Strong
Change in poverty rate and or unemployment due to brownfield redevelopment	Moderate	Moderate	Highly Disproportionate Impacts	Long-Term	Strong

Community Context and Quality

Literature Review

In real estate, perception is usually reality, both at the high end and the low end of the market. Perception dictates the price of an apartment with a nice view or an abandoned gas station. However, negative perceptions can do more than drive property prices down – they can constrain real estate transactions and leave properties in a real estate "limbo". When people assume that a property "may be" contaminated, depending on its current or past use, it could possibly be. This can negatively impact attitude's and perceptions of communities, which affects the marketplace by driving perceived remediation and redevelopment costs up (Brownfield Listings, 2015). Because of this, blight is frequently associated to brownfields; blight is a pattern of urban decline that takes form as dilapidated building structures, neglected housing, or as vacant and abandoned properties, and has profound negative impacts on afflicted communities (HUD User, 2019). Blight is driven by disinvestment and unemployment that causes residents to abandon their property and migrate in search of better job opportunities, or they neglect managing the maintenance of said property for financial reasons (Mock, B., 2017).

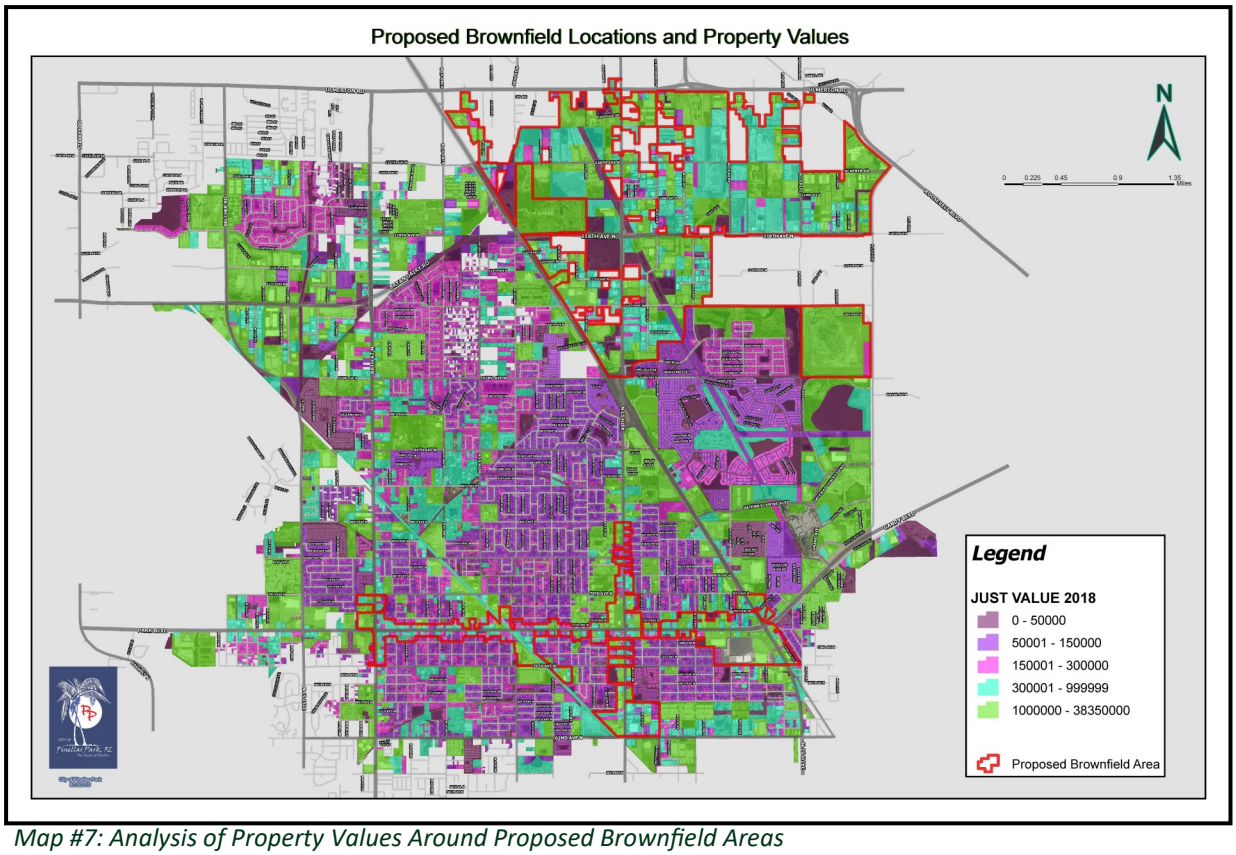
Tax incentives, regulatory incentives, and other similar cost-saving mechanisms are successful ways to incite redevelopment that removes blight. However, it is vital to enable the regeneration of neighborhoods through the revitalization of aspects of the physical environment that are not working well without the replacement of the people who live there (Maantay, J. et al, 2018). Thus, inciting local business creation and community engagement would be effective in stabilizing communities and preventing gentrification. Likewise, blight is very closely associated with crime via the "broken windows theory" which is the idea that suggests broken glass and other structural deterioration are a gateway to neighborhood instability, and that vacant properties that remain idle can encourage crime (Campbell, J.,N.,M., 2012). Unfortunately, using law enforcement as a tool before employing redevelopment and community empowerment tools can worsen public perceptions of a blighted community and reduce social cohesion (Campbell, J.,N.,M., 2012). So, it is more useful to enable communities to organize and empower themselves to improve perceptions of their neighborhood.

"Blighted properties decrease surrounding property values, erode the health of local housing markets, pose safety hazards, and reduce local tax revenue, and in addition to its negative effects on crime rates and property values, blight causes social problems and environmental health issues" (HUDUser, 2019). As brownfield remediation occurs many of these issues can be addressed, as this assessment has established that remediation can reduce blight, increase property values and tax revenues, and increase environmental health. These factors along with crime and violence, access to healthy foods, and quality housing constitute the "neighborhood" social determinant of health. Monitoring crime rates around brownfields remediation specifically can be an indicator of public health too, since studies have proved that crime related to vacant land influences community well-being by "decreasing residents' control over neighborhood life, fracturing ties among neighbors, raising concerns about crime and safety, and exerting a negative financial strain on the community" (Leon, E. et al, 2017). This can negatively impact individual stress and mental health, and also weakens resident's ability to work collectively to improve the image of the community.

Aside from crime, brownfields and other blighting indicators present health risks to more vulnerable populations that can be resolved via constructive redevelopment (Maantay, J. et al, 2018). Health outcomes from exposure to VDP can be extensive: lower literacy rates for pre-K children, violent behaviors, poor eating and exercise habits, social isolation and breakdown of capital networks, sexually transmitted diseases, higher rates of chronic diseases, diabetes, homicide, suicide, and premature mortality (Leon, E. et al, 2017). This presents a need to not only repurpose vacant and derelict structures, but to operationalize redevelopment towards meeting specific public health needs. For instance, community-based grassroots groups in New York worked tirelessly worked in the 70's, 80's, and 90's to repurpose vacant brownfields into parks and green spaces that support community gathering and activities for things like environmental programs, performing arts, healthy food production, knowledge transfer, and political empowerment. Providing green space gives residents a chance to be relaxed in a natural environment which is critical "to individuals' physical and mental health, as well as for community well-being, cohesion, and resilience" (Maantay, J. et al, 2018).

Existing Conditions

Impacts of Blight on the Social Determinants of Health



Map #7: Analysis of Property Values Around Proposed Brownfield Areas

Map #7 overlays the proposed brownfield areas over property values to reveal that something similar to what was observed in Map #6: the brownfield areas overlay high to moderately priced properties with some outlier lower-value properties, and are surrounded by land with lower property values. It is possible that the perceived brownfields are negatively impacting property values of properties around them by association. To assure that this report offers recommendations that improves the outlook of these communities, this HIA includes Community Context and Asset Building as a health impact category to observe brownfield's impact communities as a blighting influence.

Also, the extent to which a neighborhood is meeting community compliance standards, otherwise known as code enforcement, can indicate the intensity of blight in that neighborhood. Aside from contamination, brownfields can also be plagued with physical hazards such as uncovered holes, unsafe structures, chemical waste, sharp objects, and contaminated standing water (Brownfield, 2017). Community compliance regulates lots so they do not pose threats to public health in this way. For instance, community compliance will address issues with overgrown lawns that can inflict harm on residents by harboring snakes and rodents such as rats and squirrels (Community compliance, 2019). While the Pinellas Park Neighborhood Services Division was able to provide the annual total number of code violations that were reported in Pinellas Park from 2012 to 2018, we were not able to aggregate these reports to the neighborhood scale. These totals can indicate the City's overall progress toward community compliance and projection of a stable and safe community. According the data in Table #18, it appears that code enforcement violation reports have decreased over time; a brownfield program can allow this trend to continue if applied correctly.

Table #18: Annual Total Code Enforcement Violations

Year	*Received Code Violations*
2012	3306
2013	3545
2014	2897
2015	2853
2016	2511
2017	2121
2018	2944

From Blight to Community Asset: How Adaptive Reuse can Transform Community Eye Sores

Brownfield redevelopments on industrial plants can take on a multitude of forms, but a project in Detroit proves the capacity industrial sites have to be reused for multiple uses. The 2.2 million square foot Packard Plant, which used to be an auto factory in Detroit's Russell Industrial Center, was bought by Boydell Development in 2003 with major plans for redevelopment. Today the site is home to a mix of artists, craftsman, musicians, and small businesses who both live in and use the space for business and artistic purposes. Long-term tenants occupy the site by first selecting their space in the huge site, they have it roughly renovated, and then finally occupy it. The redevelopment also serves as community space for temporary events such as markets, festivals, movie screenings, and art fairs. Its flexibility in performing as both private and community space is easily attributed to the flexibility granted by its huge size and unique design and architecture. See Table #26 in the Appendix to learn more about adaptive reuse and other development tools cities can employ to repurpose brownfields and blighted structures.

The 2019 Pinellas Park CHNA survey included responses from Pinellas Park residents that reflect their perceptions of their community. According to the survey results which are in Table #19 below, we find that residents feel they have great parks, recreational facilities, and they feel safe in their neighborhood. According to the Pinellas Park Parks and Recreation Division, the City has a little over 210 acres of park property, 4.9 miles of park walking trail, and approximately 9.6 miles of designated equestrian trail. Refer to Map #4: Analysis of the Proximity of Perceived Brownfields to Public Spaces to observe that the spatial distribution of these park space is somewhat disconnected. Improving park connectivity with trail development or road improvements may increase resident's perceptions of park quality. The data also revealed that many residents also feel that crime is a serious problem in their neighborhood, and even more disagree that there are affordable places to live in their neighborhood. Additionally, it also found that nearly 30% of respondents do not agree that "there are plenty of jobs available", that 22% of respondents feel they have problems getting health care services they need, and that nearly 30% of respondents disagree that the quality of healthcare is good in their neighborhood. This data underlines community needs as well as ways brownfield redevelopment projects can improve access and equity to these critical services. Accordingly, brownfield redevelopment should emphasis economic redevelopment to increase the number of jobs, development of healthfields to increase access to healthcare services, creation of more affordable housing units, and the elimination of blight which may incite criminal activity.

Table #19: Pinellas Park 2019 CHNA Survey Responses of Pinellas Park Residents on Quality of Neighborhood Conditions

Question	*Response: Agree*	*Response: Disagree*	*Response: Not Sure*
We have great parks and recreational facilities	74%	15%	11%
There are plenty of jobs available for those who want them	41%	29%	30%
I have no problem getting the health care services I need	74%	22%	4%
Public transportation is easy to get to if I need it	51%	22%	26%
There are affordable places to live in my neighborhood	34%	46%	20%
The quality of health care is good in my neighborhood	57%	29%	12%
Crime in my area is a serious problem	31%	43%	26%
I feel safe in my own neighborhood	83%	10%	7%
Average number of responses for above survey questions were 193. As of 2019 this represents 0.36% of Pinellas Park residents (53098)			

Further, Table #20 shows that nearly 36% of Pinellas County residents, including Pinellas Park residents, are overweight, almost 30% are obese, and 54% are inactive. All of these percentages are higher than what the State indicates, demonstrating that residents need a more coordinated form of encouragement to lead active lifestyles. Also, Pinellas County residents are living increasingly sedentary lives despite the amount of natural and recreational amenities they have at their disposal. Harmonizing landscapes with streetscapes to increase connectivity, improve accessibility of services, and provide more opportunities to be physically active can improve these conditions. Also, as redevelopment of brownfields and blighted structures and vacant land is facilitated by the proposed Brownfield Program, residents' perceptions of safety can increase. This empowers residents to exercise in their community, such as the 10% of residents who do not feel safe in their neighborhood as recorded in Table #19.

Table #20: Risk Factors to Health in Pinellas County, 2018	**County**	**Florida**
Adults who are Overweight	35.80%	35.80%
Adults who are Obese	28.10%	27.40%
Adults who Currently Smoke	20.30%	15.50%
Adults who are Inactive	54.40%	56.70%
Source: Suncoast Health Council Pinellas County Health Profile		

Table #21: Health Impact Indicators for Community Context and Quality Assessment

Indicator	*Likelihood*	*Magnitude*	*Distribution*	*Timing*	*Strength of Evidence*
Change in number of vacant properties that exist in and around proposed brownfield areas	High	Moderate	Moderate Disproportionate Impacts	Intermediate	Strong
Decrease in crime rates in and surrounding proposed brownfield areas	Moderate	Moderate	All Groups Impacted Equally	Long-Term	Strong
Change in property values in and surrounding proposed brownfield areas	Moderate	Moderate	Highly Disproportionate Impacts	Long-Term	Strong
Increase in green space in and around proposed brownfield areas	High	Moderate	All Groups Impacted Equally	Intermediate	Strong
Decrease in annual code enforcement violations	Low	Low	Moderate Disproportionate Impacts	Long-Term	Limited

Built Environment

Literature Review

According to Pinellas County Economic Development: “Pinellas County is the second smallest [in land mass] and most densely populated county in Florida. [It is] reaching buildout, a condition in which virtually no large undeveloped vacant parcels remain. New development is only possible through infill construction and redevelopment of older properties” (PCED, 2019). With this being the case, it is critical to make Built Environment a health impact category in order to maximize on the advantages of infill developments on perceived brownfields in the City, especially since the City sits in the county’s center as “The Heart of Pinellas”. This makes the City built out and landlocked, though it has the advantage of neighboring other major municipalities and having commuter and tourists passing through it each day.

The built environment that makes up our neighborhoods and communities can determine our general well-being as a social determinant of health. For example the proximity of our residence to our jobs, our children’s schools, and public services and amenities, along with access to public transportation will affect our health. (Leon, E. et al, 2017). Also “an individual’s health can affect how the built environment is perceived and used (for example asthmatics, arthritics, disabled, unhappy or feeling unsafe), and similarly features in the built environment can influence incidence of chronic or communicable disease and immune response” (Campbell, J.,N.,M., 2012). Thus, similar to our relationship with the natural environment, humanity's relationship with the built environment have health and equity implications. See Table #26 in the Appendix for a more in-depth analysis of the different planning strategies that can be used to redevelop brownfields. Once in an interview, David Lloyd and Matthew Dalbey of the EPA explained that the earlier approaches to the environmental recovery of industrial sites like brownfields dating back to the mid-1970s was dominated by an emergency, large-scale, top-down approach with the main goal of eliminating environmental hazard, often under huge pressure from public opinion (Robiglio, M., 2016). Today, the EPA knows that brownfield projects should be proactive instead of reactive to achieve a balanced relationship between the built environment and the natural environment. Also, projects need to be more complex and involve redevelopment, preservation, community engagement, and should also always employ sustainable development (Yacovone, K., 2016).

Concepts such as “Live, Work, Learn, and Play”, Complete Streets, and Smart Growth are becoming increasingly popular (Campbell, J.,N.,M., 2012) to the population of new homeowners, aging baby boomers, and single householders who are demanding walkable, connected communities (Minnesota Brownfields, 2019) over the sprawling, car-dependent, disconnected suburbs. Redevelopment efforts that employ strategies like Smart Growth, which is “a planning method that covers a range of development and conservation strategies that help protect our health and natural environment and make our communities more attractive, economically stronger, and more socially diverse (About Smart Growth, 2019) on brownfield sites can meet these changes in resident preferences while improving social, economic, and environmental conditions. The EPA recommends using Smart Growth principles to reimagine brownfield sites as compact and mixed-use projects rich in local business, housing meeting all socioeconomic demands, pathways safe for pedestrian and bicycle use, open green space, and vital neighborhood and health services. These types of projects improve quality of life by increasing community connectivity and promoting physical activity, stabilizing families and communities via economic continuity and opportunity, creating places that enhance social interaction and cultural cohesion, and bolstering the City’s attractiveness and vibrancy as old community eye sores are made useful again to the community (About Smart Growth, 2019). It also allows for the City to facilitate development in the inner-city rather than in suburbs where sprawl can occur.

Also, brownfield redevelopment can promote sustainability and resilience, other emerging planning concepts focused on improving quality of life. A sustainable approach to remediating brownfield sites is to build green infrastructure or renewable energy sources. “Initiatives such as the construction of green buildings and alternative building approaches (e.g., green roofs or permeable parking lots), incorporation of green infrastructure and environmentally conscious landscape design, planning for natural open spaces and parks, adoption of water-recycling techniques, and renewable energy systems can all be significant aspects of brownfield reuse projects” (Lewis, G., 2008) because of their positive outcomes and enhancements to the built environment. Green infrastructure can be defined as infrastructure that makes use of natural systems to help manage storm water and improve water and air quality. Examples of green infrastructure are green roofs, rain gardens, and use of permeable hardscapes that minimize run off that may carry pollutants downstream into water reserves (OSWER, 2008). Also, green infrastructure has been proven to increase perceptions of safety, use of outdoor amenities, and energy savings (OSWER, 2011) over nonrenewable energy. Likewise, exploring potential applications for onsite production of renewable energy can help reduce a city’s environmental footprint, reduce reliance on scarce nonrenewable energy sources, and with community awareness can help increase energy efficiency and the savings that follow. (OSWER, 2011).

More notably, employing a holistic approach to redevelopment, such as developing green infrastructure as parks or trails on perceived brownfields, can improve long-term health outcomes since healthier and sustainable communities are outcomes of this type of redevelopment (Berman, L. et al, 2009). Repurposing perceived brownfields is inherently sustainable since "one acre of redeveloped brownfields has been estimated to conserve 4.5 acres of greenfields sprawl development" (Paull, E., 2008). By saving trees and preserving undeveloped, vegetated land, brownfield remediation can preserve habitat connectivity, carbon-sequestering green space, and biodiversity on undeveloped land (Minnesota Brownfields, 2019). Further, using existing structures and materials for redevelopment can also reduce waste, and with brownfields increasingly being used for mixed-use redevelopment that includes housing, brownfield sites collectively represent an opportunity to accommodate population growth (Lewis, G., 2008). This is because mixed-use developments with their higher housing densities, mixed land uses, and shorter blocks increase access to walking, biking, and public transportation as opposed to driving (Minnesota Brownfields, 2019).

This can increase opportunities to be physical activity, which can help reduce obesity rates and incidences of chronic disease associated with it. It can also increase social interactions and community participation which are "essential resources" for adults, especially aging adults, who may suffer from social isolation and depression (Minnesota Brownfields, 2019). By creating these opportunities and resources, brownfield redevelopment can breathe new life into areas that are perceived as burdensome or hopeless, and recreate them into community and economic assets that are centrally located as opposed to being moved out into the suburbs or outskirts of a city (Yacovone, K., 2016). Not only does this present urban communities with opportunities to connect neighborhoods, create green space and parks, attract businesses, and develop affordable housing, it reduces sprawl. By reducing sprawl residents are able to save transportation costs lost to longer commutes. This can reduce Vehicle Miles Traveled, which reduces carbon emissions that impact air quality. Mixed-use development also helps increase energy savings since denser development frequently requires less energy per capita (Minnesota Brownfields, 2019).

Most Importantly, brownfield programming can endorse the repurposing of sites into healthfields such as clinics or health centers, community gardens, and even hardened shelters where residents can bring service animals or pets to ensure evacuation orders are heeded (Carroll, A., 2014). While infill projects are ideal for business creation and economic redevelopment, it is important that residents play a role in the development process to prevent gentrification or resident relocation. "Government needs to significantly contribute to the effort towards social equity by implementing policies that prevent gentrification, by means of affordability protections for residents and businesses; anti-gentrification rental controls; zoning ordinances to prevent new development inappropriate to the existing context of the neighborhood and encourage conscious restorations of existing older housing stock; mixed-use zoning and smaller development projects rather than large mega-projects; and new housing types geared toward existing populations of families (larger dwelling units, fewer studios and one bedrooms)" (Maantay, J. et al, 2018).

Mixed-Use Project in Tampa Proves Brownfield Redevelopment can have Renewed Form and Function

Northeast of Tampa's downtown is a mixed-use project called ENCORE! that completed construction in spring 2019. The site was once a blighted public housing project known as Central Park Village which is far from the contemporary plazas, walkways, and buildings that now comprise ENCORE! The project spans 12 city blocks and consists of two senior citizen housing buildings, two affordable housing complexes, and two multifamily housing buildings. ECORE! is a "socially responsible" project that employs historic preservation as a tool to honor the historic African-American history of the community as well as its long musical tradition. ENCORE! is also environmentally responsible by being a "green" project that is LEED-certified neighborhood, meaning it meets the internationally recognized rating standard for green building set by Leadership in Energy and Environmental Design (LEED). The goal for ENCORE is to meet the Gold LEED criteria in its entirety in the near future. Additional green features of ENCORE is its District Chiller Plant, which uses chilled water to cool buildings on site and replace the many A/C units that would otherwise sit on top of the building. The project also has installed solar panels, a stormwater vault that reduces risks of flooding, a walkable and bike-friendly campus, fitness centers, built-in doctor's offices with examination rooms, and a gardening club.

Existing Conditions

Need for Health-Focused Infrastructure

The 2013-2017 ACS Pinellas Park Profile reveals that like many cities, the majority of Pinellas Park residents (92%) use an automobile or carpool in an automobile as their main form of transportation. Only 0.8% of residents walk and just 1.2% use public transportation. And according to Walk Score, the City has a Walk Score of 40 out of 100, and a Bike Score of 49 due to limited walking and biking paths, deeming it a "Car-Dependent" city (Walk Score, 2019), which reduces opportunities to be physical active. Streets being safer and more comfortable for walking and biking can help to change these statistics. Table #22 lays out data from the Florida Department of Health's Data Viewer to reveal characteristics about resident's health opportunities at the census tract level. According to the Pinellas Park Parks and Recreation Division, the City has a little over 210 acres of park property, 4.9 miles of park walking trail, and approximately 9.6 miles of designated equestrian trail. Fortunately many residents have access to a park, only census tracts 245.12, 246.01, 250.11, 250.12, and 250.14 have small percentages of people that live within a half-mile of a park. Unfortunately, only one census tract which is tract 246.01 is within a half-mile of a trail, limiting residents ability to walk or bike by trail. While the table shows that many census tracts have high percentages of residents that live near fast food restaurants, the percentages of how many people live near a healthy food source per census tract is also high in many census tracts. However, some census tracts show they have more residents living close to fast food restaurants than healthy food sources, like tract 245.12, which has 0% of residents living near healthy food sources and 14% of residents living near fast food restaurants. This data can guide prioritization strategies for redevelopment projects geared toward increasing healthy food access and distribution.

Table #22: Impact of the Built Environment on Healthy Choices

Census Tracts	*Percentage of People living within a 1/2 Mile from a Healthy Food Source*	*Percentage of People living 1/2 Mile from a Fast Food Restaurant*	*Percentage of People living 1/2 Mile from a Park*	*Percentage of People living 1/2 Mile from a Trail*
245.05	21.3%	31.8%	25.6%	0.0%
245.12	0.0%	14.1%	3.8%	0.0%
245.13	43.7%	27.4%	39.2%	2.3%
246.01	44.0%	28.6%	7.7%	66.8%
247.01	66.8%	35.6%	77.8%	0.0%
248.01	41.3%	45.0%	57.7%	0.0%
248.03	85.6%	31.0%	83.7%	0.0%
249.01	71.7%	68.2%	82.4%	0.0%
249.02	93.9%	78.3%	87.7%	0.0%
249.04	50.2%	51.0%	91.5%	0.0%
249.05	27.9%	4.9%	100.0%	0.0%
249.06	60.8%	68.8%	(--)	0.0%
250.04	41.8%	47.0%	19.8%	0.0%
250.09	10.2%	63.6%	76.4%	0.0%
250.11	33.0%	63.9%	10.0%	0.0%
250.12	13.0%	21.0%	3.2%	0.0%
250.14	57.9%	56.0%	0.0%	0.0%

Source: https://www.floridatracking.com/healthtracking/mapview.htm?i=8250&g=3&t=2016

However, despite the proximity of parks and healthy food sources, residents still exhibit unhealthy characteristics to an extent. According to Figure #6, taken from the 2018 Pinellas County CHA, in 2016 26% of county residents lead sedentary lifestyles, and 54% were inactive. Consequently, the assessment found that 26% of county residents were overweight and 28% were obese. Note that Figure #6 shows 2016 data that was collected from a CHA completed in 2018.

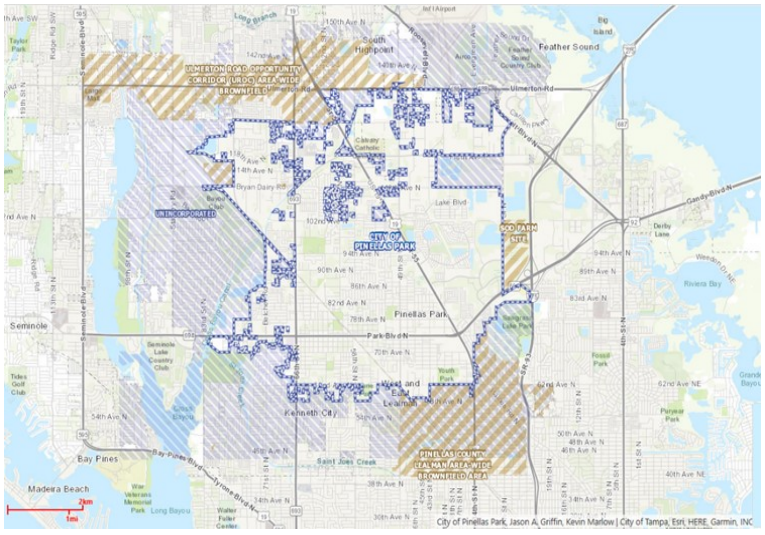
Data from the Florida Behavioral Risk Factor Surveillance System (BRFSS)				
Protective Factors	**Measure**	**Year**	**Pinellas**	**Florida**
Adults who are sedentary	Percent	2016	26.0%	**29.8%**
Adults who are inactive or insufficiently active	Percent	2016	54.4%	**56.7%**
Adults who meet aerobic recommendations	Percent	2016	**47.3%**	44.8%
Adults who meet muscle strengthening recommendations	Percent	2016	**39.4%**	38.2%
Adults who are overweight	Percent	2016	35.8%	35.8%
Adults who are obese	Percent	2016	**28.1%**	27.4%
Adults who are at a healthy weight	Percent	2016	**34.7%**	34.5%
Adults who are current smokers	Percent	2016	**20.3%**	15.5%

Figure #5: Public Health Indicators Derived from the 2018 Pinellas County Community Health Assessment
Source: Pinellas County 2018 CHA

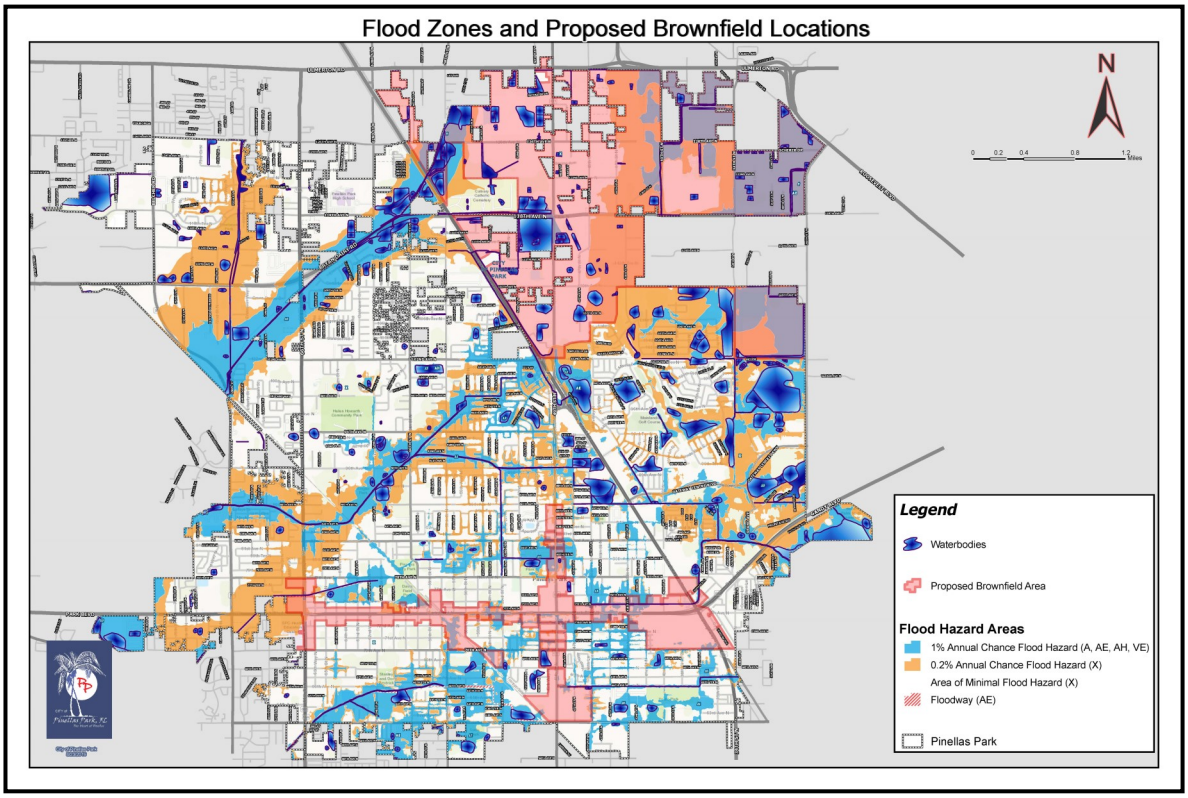
Local and Regional Redevelopment Opportunities

It happens that Pinellas County has three designated brownfield areas located at Pinellas Park's north, south, and west borders according to FDEP's GeoViewer (see Map #8). Collaborating with the County's Land Recycling Program's brownfield redevelopment initiatives could enable the City to increase connectivity and deliver recreational opportunities at a regional scale, such as trails, bike lane systems, and urban agriculture. See Map #5 to overview the land uses prevalent on the designated brownfield areas. The predominant land uses in the Pinellas Park Community Redevelopment Area are Single Family Residential, Manufacturing/Industrial, and Commercial which span over 36 percent, 16 percent, and 15 percent of the redevelopment area, respectively. There is a large quantity of public and institutional land within the redevelopment area, which includes churches, schools, and municipal lands, and accounts for just over 12 percent of the Redevelopment Area. There are over 73 acres of vacant land in the Redevelopment District that generates little to no tax revenue. Vacant land presents an opportunity to enhance the built environment of the Redevelopment District via redevelopment and of unproductive space. Effective site reuse can look like mixed-use residential and commercial business spaces that increase local business and connection to community services, affordable housing, and light manufacturing to concentrate jobs in the heart of the City. Repurposing vacant sites will also generate additional tax increment revenue for the City.

Likewise, the Northeast Brownfield Areas main land uses are Industrial, Heavy and General Commercial that permit retail, wholesale, warehousing and distribution, and light manufacturing operations. Some housing is present in the area as both single-family and multifamily housing. Industrial and manufacturing plants as well as old warehouses here would be prime mixed-use projects for retail and commercial uses or for multifamily residential uses. Similar to the Redevelopment District, the Northeast Brownfield Area is encumbered by vacant sites, which if redeveloped to supplement the areas health-promoting infrastructure, can help increase City tax revenues.



Map #8: Florida Department of Environmental Protection GeoViewer (2019)



Map #9: Flood Zone Proximity to Perceived Brownfields

Map #9 shows our proposed brownfield areas with an overlay of 100-yr flood zones, 500-yr flood zones, and existing waterbodies. The map confirms that several water bodies are in close proximity of perceived brownfields, putting these water resources at risk of possible contamination, especially in times of natural disasters such as flooding or hurricanes. Water bodies seem to appear more in the Northeast Brownfield Area where industrial and manufacturing uses are predominant. Here, there are also many incidences of the 500-yr flood zone. In the Redevelopment District there are fewer water bodies present, but there are more incidences of the 100-yr flood, which is concerning since this area is characterized by its commercial, retail, and public uses. Brownfield remediation can be designed to allow newer infrastructure to be more resilient and capable of absorbing impacts from flooding. However, should affordable housing be considered for the redevelopment of a brownfield, coordination between the developer, the City, and the Pinellas County Emergency Management department can help ensure there is sufficient shelter capacity for additional residents as well as access to nearby evacuation zones. Since, Pinellas Park is surrounded by coastal communities that may soon experience impacts from sea level rise, and the County is already experiencing an emergency shelter deficit according to the Tampa Bay Regional Planning Council, creating emergency shelters is an ideal reuse strategy for brownfield sites.

Redeveloping perceived brownfields into green infrastructure or green space when they are close to flood zones would be strategic if site redevelopment also integrated those unincorporated sites that use septic tanks into the City so they can switch to using City utilities over septic. According to City GIS, there are a total of 65 septic tanks in Pinellas Park and of those 26 are located on unincorporated sites, 9 of which are located in the Northeast Brownfield Area. Reducing the number of septic tanks within proximity of brownfields helps to reduce risks to water quality, as pollution from septic tanks can multiply the already harmful effects brownfield pollution can inflict on water resources.

Figure #6: City of Pinellas Park GIS Data on Local Septic Tanks

Total Septic Tanks	**65**
Septic Tanks Within Municipal Boundary	39
Septic Tanks in Unincorporated Areas	26
Septic Tanks in the CRA Brownfield Area	1
Septic Tanks in the NE Brownfield Area	13
NE Brownfield Area Municipal	4
NE Brownfield Area Unincorporated Areas	9

Source: Pinellas Park GIS Department

Another important component of the built environment to consider is affordable housing. Figure #8 reveals that in Pinellas Park, as incomes increase, housing cost burden also increases. This means that as residents bring home more income, a larger percentage of it is used to cover housing costs. For instance, in 2016 the number of residents who make 30% or less of the Area Median Income (AMI) and spend more than 50% of their income on housing costs totaled to 1,742, and those who earned considerably more money (50% to 80% of AMI) and spent 30%-50% of their income on housing costs totaled 1,776. Rising cost burden may relate to rising housing costs or stagnate wages, however using brownfield redevelopment for housing purposes can ensure residents have a reliable stock of affordable housing. This can help improve any socioeconomic burdens of residents, neighborhood stability, and reduce housing insecurity. According to the table, a total of 8302 residents were cost burdened in 2016, with the majority of them being homeowners. In 2016 only 1235 affordable housing units were available, not nearly close to how many cost burdened residents there were.

All Households, Cost Burden by Income, 2016 Estimate (Summary)

		Housing Cost Burden		
Geography	**Household Income**	**30% or less**	**30.1-50%**	**More than 50%**
Pinellas County	30% AMI or less	3570	2806	34195
Pinellas County	30.1-50% AMI	8102	13181	22073
Pinellas County	50.1-80% AMI	25780	27167	14868
Pinellas County	80.1-120% AM	51095	21740	7032
Pinellas County	more than 120% AMI	179967	23291	4892
Pinellas Park	30% AMI or less	264	45	1742
Pinellas Park	30.1-50% AMI	568	616	1241
Pinellas Park	50.1-80% AMI	1816	1776	536
Pinellas Park	80.1-120% AM	2875	1145	282
Pinellas Park	more than 120% AMI	8633	846	73

Sources: Estimates and projections by Shimberg Center for Housing Studies, based on 2000 and 2010 U.S. Census data and population projections by the Bureau of Economic and Business Research, University of Florida

Figure #7: Assessing Housing Cost Burden in Pinellas Park

Table #23: Health Impact Indicators for Built Environment Assessment

Indicator	*Likelihood*	*Magnitude*	*Distribution*	*Timing*	*Strength of Evidence*
Number of brownfield projects that employed a progressive planning approach (Complete Streets, Smart Growth, mixed-use, etc.)	Moderate	High	All Groups Impacted Equally	Intermediate	Strong
Number of brownfield projects that incorporate sustainable design (green infrastructure, energy efficient design, renewable energy)	Moderate	High	All Groups Impacted Equally	Intermediate	Strong
Number of brownfield projects that support connectivity and physical activity	Moderate	High	Moderate Disproportionate Impact	Long-Term	Strong
Number of brownfield programs that increase access to community amenities like grocery stores, health clinics, affordable housing, pharmacies, etc.	High	High	All Groups Impacted Equally	Intermediate	Strong
Number of times City residents are engaged on proposed brownfield redevelopment projects	Moderate	Moderate	Moderate Disproportionate Impact	Short-Term	Strong

Brownfield Program Recommendations

1) Establish a Brownfield Program that uses health and equity data to prioritize redevelopment in areas that: have lower socioeconomic status, indicate poorer health conditions, are in closer proximity to public places, or can improve community connectivity and quality. This program will establish an Advisory Board to guide program implementation and monitoring.

2) Create a community engagement plan to aggressively collect stakeholder input that can inform goals for brownfield redevelopment and identify potential projects. Input gathered can be used to guide projects focused on health equity, community resilience, and placemaking. Engagement should also raise residents' awareness of the implications brownfields have on public health and the environment.

3) Develop and enforce the use of a healthy development checklist for future brownfield redevelopment projects in order to prioritize projects that positively impact health and equity over those that do not. The checklist can be used to estimate the appropriate incentives that may potentially be available to offer to project proposals. The checklist can also serve as a rating system that rewards more health-focused projects with positive "Health Score" badges that also function as a marketing agent.

4) Include health and equity criteria in the review process for brownfield project proposals to support the early consideration of the project's potential impact to public health.

5) Monitor health data at the census tract level using assistance from the Florida Department of Health in Pinellas County where applicable to prioritize redevelopment projects.

6) Identify grants or programs that can support business development that achieves local economic development goals. Likewise, encourage public investment into the Brownfield Program to facilitate community projects such as the creation of parks and open green space.

7) Define desired business/industry for designated brownfield sites and establish a marketing plan that will attract compatible economic development projects.

8) Encourage developers to allocate a percentage of their business' employment opportunities that were created to reach job creation minimums for funding purposes for Pinellas Park residents, and also encourage developers to include residents in construction and redevelopment where possible. Similarly, encourage developers to create affordable housing units wherever possible to meet minimum requirements of brownfield funding opportunities.

9) Promote redevelopment that provides health services (i.e. health clinics, pharmacies, counseling centers) and also support the growth of the Pinellas Park Medical District.

10) Maintain a database of ongoing and completed brownfield projects and consider conducting site tours of redeveloped sites to show program progress. This database should also catalogue vacant sites to help identify reuse projects.

11) Encourage developers to utilize resources from the FDEP and the EPA that provide assistance with brownfield redevelopment and business creation.

12) Advocate for businesses to establish Community Benefits Agreements with communities or to reserve revenues for the provision of community services such as sports programming, healthy eating tutorials, or urban gardening.

13) Encourage partnerships between developers and property-owners to increase collaborations that lead to development projects that protect and promote health.

14) Support redevelopment that is compatible with surrounding uses. Work with municipal departments to create zoning ordinances and Comprehensive Plan amendments that support brownfield projects that enhance community quality.

15) Seek collaborative brownfield redevelopment opportunities with Pinellas County.

Recommended Healthy Development Checklist

The following charts serve as a template for a healthy development checklist that was recommended for Brownfield Program implementation. Healthy development checklists are tools that public health officials employ to assess impacts proposed projects may have on public health and recommend ways to maximize positive impacts and reduce negative impacts. The template is a draft of a healthy development checklist that can be modified in order to meet program needs accordingly. The health criteria categories are based on health impact categories established in this HIA and are thus linked to the health data in this HIA. This recommendation intends to:

- Inform brownfield redevelopment decisions of health and equity impacts
- Prioritize healthier development over less health-focused projects
- Guide the Brownfield Program in a more health focused direction that addresses critical, Pinellas Park specific health and equity issues.

When applying this healthy development checklist to proposed brownfield projects, one of its functions will be to provide a grading scale to “score” proposed projects based on how well they meet the checklist’s health criteria. The score is then used to designate the project with a "health badge", which can incentivize healthy development by making it more attractive, rewarding, and marketable to developers. A point system that is applied to checklist criteria will facilitate the calculation of “scores” by showing the number of criteria that is satisfied by the project proposal. The checklist should be applied to all development proposals submitted to the Brownfield Advisory Board in order to assess the project with a health lens. It is recommended the health badge recipients have the opportunity to improve their property/project in order to upgrade their designation over a determined period of time.

Brownfield Remediation Grade Scale		
50% Satisfied Criteria		**Community Wellness Leader**
60% Satisfied Criteria		**Environmental Justice Champion**
75% or Higher Satisfied Criteria		**Pinellas Park Health Superhero**

Environmental Justice					
Criteria	Applicable Project Type (Y/N)	Satisfies Criteria (Y/N)	Evidence	Indicators for Health Impact	Potential Health Impact
Does the project reduce public and environmental exposure to pollution associated with brownfields?				Existence of contamination; Air quality indicators; Water quality indicators; Proximity to populations; Proximity to natural resources	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Is the project located on or within a half-mile of a flood zone or water body?				Proximity to flood zones/water body	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Is the project located on or within a half-mile of a public space, such as parks, schools, or city facilities?				Proximity to public spaces	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project conserve energy or natural resources in any way to meet a third-party energy standard, such as the LEED Silver Certification?				Reduces car trips and Vehicle Miles Traveled (VMT); Reuses existing structure; Utilizes renewable energy; Employs energy-efficient	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High

Increased Human Capital and Socioeconomic Status					
Criteria	Applicable Project Type (Y/N)	Satisfies Criteria (Y/N)	Evidence	Indicators for Health Impact	Potential Health Impact
Is the project conveniently located near housing and public transit systems where it can tap into local workforces?				Location of proposed project	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project create the minimum number of jobs required by local and state policy? See Florida Department of Environmental Protection Brownfield Act and Pinellas Park Brownfield Program legislation.				Number of jobs proposed by project	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project aim to include public input into its development and operationalization?				Project community engagement component	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project reuse an existing structure that was negatively impacting the community in a way that allows it to better serve resident needs, such as affordable housing, locally-owned business park space?				Quality of existing structure; Proposed reuse	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High

Improved Neighborhood Quality					
Criteria	Applicable Project Type (Y/N)	Satisfies Criteria (Y/N)	Evidence	Indicators for Health Impact	Potential Health Impact
Does the project utilize values of Complete Streets to improve street safety and comfort for pedestrians, cyclists, and public transit users?				Proposed street amenities or features	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project better connect neighborhoods by providing a reliable neighborhood service and inclusive environment?				Proposed redevelopment purpose and location	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project aim to improve community resilience using principles of Smart Growth, such as increased densities, reduced parking spaces, and sustainable design, and progressive design for storefronts, signage, and landscapes?				Proposed project amenities or infrastructural features	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project improve safety with features that increase perceptions of safety, such as widened sidewalks, lighting, and use of green space?				Proposed project amenities or infrastructural features	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High

Increased Access to Health Promoting Infrastructure					
Criteria	Applicable Project Type (Y/N)	Satisfies Criteria (Y/N)	Evidence	Indicators for Health Impact	Potential Health Impact
Does the project propose connecting populations to any local parks, trails, public transit, or recreational centers?				Project proximity to opportunities to be physically active; Project features that improve connectivity	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project provide health services in any way as a: health clinic, pharmacy, grocery store, nonprofit, doctor's office, dentist's office, community garden, shelter, food bank, walking paths, or a similar activity?				Services provided by proposed project	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Does the project have a marketing plan to educate and include all stakeholders on their services?				Quality of marketing plan if it exists	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High
Is the project located near vulnerable populations? (i.e. low-income residents, elderly, minority groups, disabled, transportation disadvantaged)				Proximity of proposed project to vulnerable groups; locational information for vulnerable groups	☐ None ☐ Neg ☐ Pos-Mod ☐ Pos-High

Reporting

The Reporting phase of a HIA outlines how findings will be communicated to decision-makers and stakeholders. The HIA Report's key findings and recommendations will be reported to the Pinellas Park City Council in both a Public Workshop meeting and a City Council meeting, with the City Council meeting being aired on the City's local television channel for the public to view. Following the completion of the final draft, the HIA will be electronically shared with key informants and stakeholders for feedback: Department of Health in Pinellas County, FDEP Brownfield Program Officers, Tampa Bay Regional Planning Council, Pinellas County Economic Development Department, Pinellas/Gateway Chamber of Commerce, and Forward Pinellas. Further, the HIA and its recommendations will be shared at forthcoming conferences where beneficial, including but limited to the National American Planning Association conference and the organization's Florida-based conference, and the National Brownfield Association and the Florida Brownfield Association conferences. Once complete, the HIA will be accessible through the Pinellas Park City website.

Stakeholder Engagement

Due to the limited timeframe of the HIA process, very limited stakeholder engagement was employed. While many of the informants listed in Table #2 were engaged during the Assessment phase of the HIA and again in the Reporting phase, City resident's input was not used in the making of this HIA. A public survey was distributed to Pinellas Park/ Gateway Chamber of Commerce members to attempt to collect their input, however survey response was very low. After deliberating this low response rate, the HIA Team determined to not go forward with analyzing the survey results. Because the statutory process of creating the proposed Brownfield Program would not be completed until after the HIA timeframe, the HIA Team felt that public engagement for the program would be more effective if done after the program is in place. However, the HIA project will have the opportunity to be commented on by the general public at a City Council Workshop meeting and at a City Council meeting.

Monitoring and Evaluation

This phase of the HIA contains three components: a process evaluation, a plan for outcome evaluation, and a roadmap for monitoring outcomes long-term. The process evaluation indicators assess the HIA process and its impact on decision-making in order to evaluate its effectiveness at bringing health and equity considerations into the process. The outcome evaluation indicators suggest how health outcomes that may be influenced by the decision-making process will be evaluated and measured over time. The HiAP Planner and the HIA Team will conduct process evaluation once the Reporting phase of this HIA is concluded. Because of the fact that the proposed brownfield sites in this HIA have not been associated with any real contamination and it is not certain that any will, it is more difficult to define the connection between brownfield remediation and changes in health outcomes. Because of this limitation, the outcome evaluation will mainly assess how the program impacted social determinants of health to improve access to healthier choices. Social determinants to observe include but are not limited to: economic opportunity, access to healthcare services, access to fresh food, access to safe streets to walk or bike on, access to parks and green space, access to affordable housing, and capacity of brownfield redevelopment projects to improve community quality and the built environment.

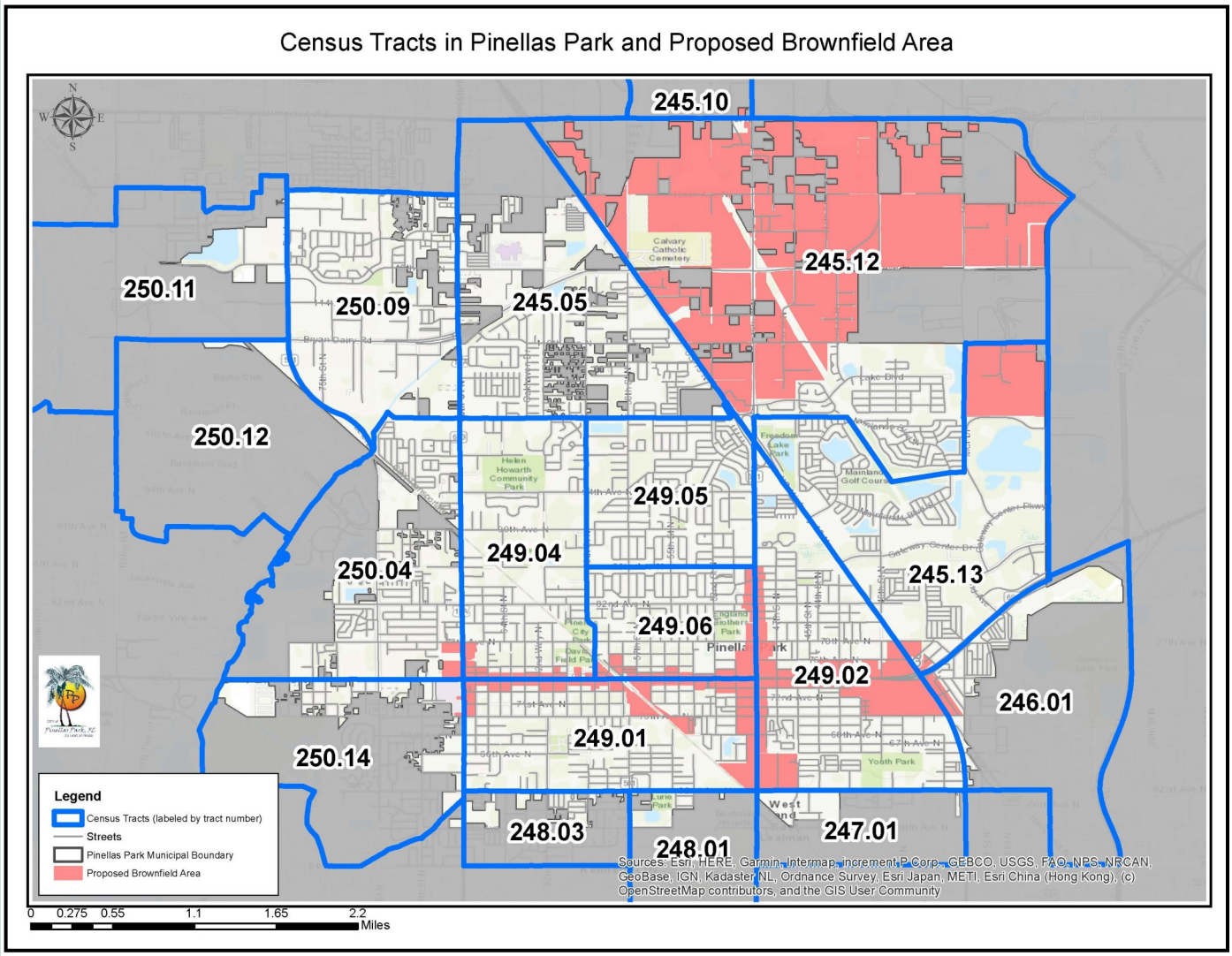
Outcome evaluation should be conducted periodically as part of the roles of the proposed Brownfield Advisory Board. A limitation to evaluation to consider is the very nature of the program: because redevelopment is being focused in two somewhat broad designation areas and is contingent upon the actions of developers and property owners, it is a challenge to know when and where investments in redevelopment will be made, nor for what purpose. As such it is not feasible to establish a timeline of health or equity impacts the program will create. Should the opportunity to conduct an HIA on a single brownfield project or site present itself, City staff could use an HIA to better assess impacts to health and the connection between brownfield remediation and health and equity outcomes. Lastly, another limitation to consider in program implementation is the availability of funding for cleanup and redevelopment as well as the availability of City regulatory incentives for brownfield redevelopment.

Table #24: HIA Process Evaluation Indicators

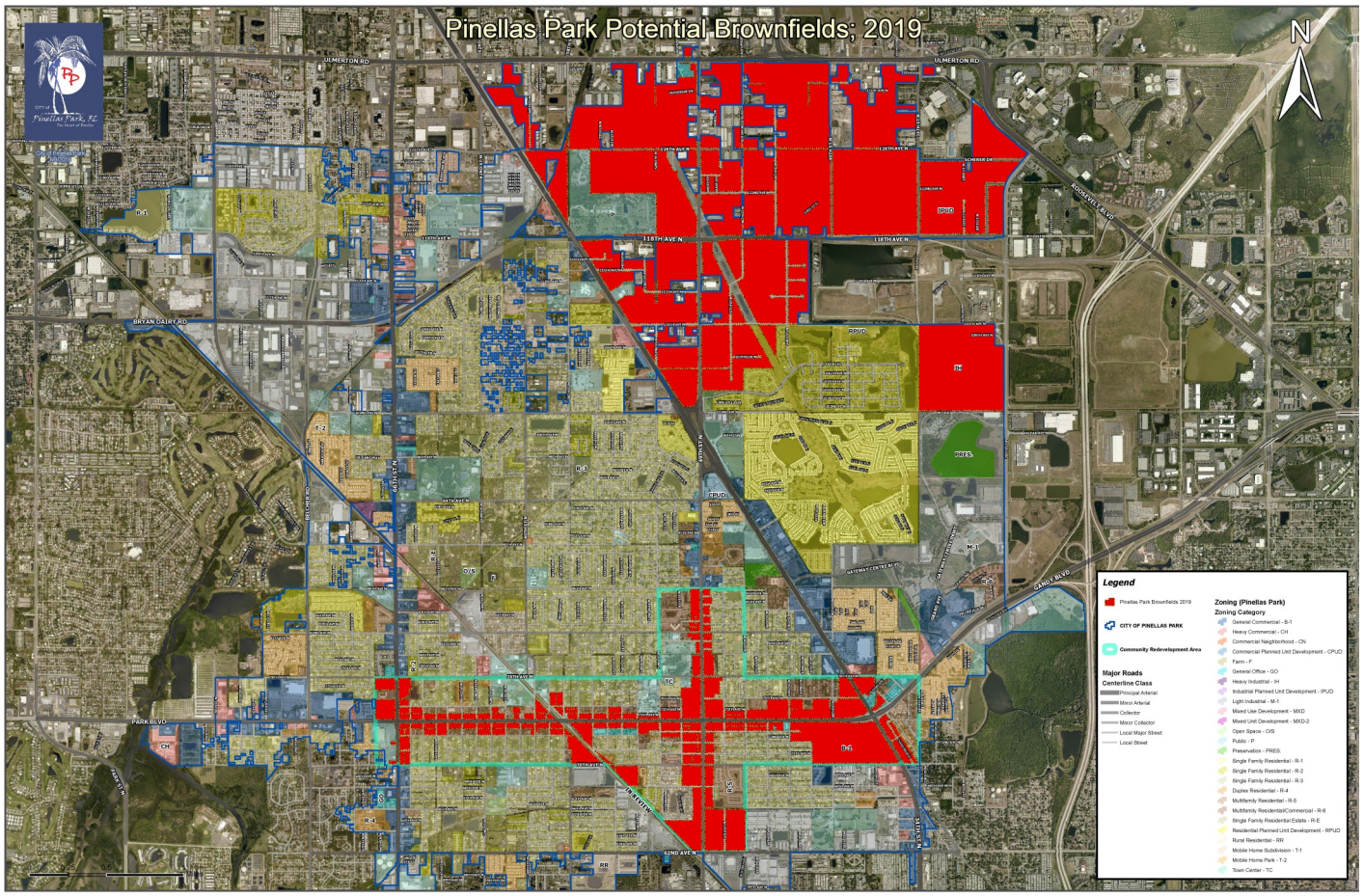
HIA Value	*Indicator*	*Notes*
Public Participation	Number of City or community meetings where the HIA is	
Cohesiveness of the HIA Team	Number of HIA Team meetings, number of members participating, and amount of feedback provided	Compare number of participating members to the total number of HIA Team members
Effectiveness of the HIA on the Decision	Number of HIA recommendations adopted in whole or in part by the City Council	
Transparency of the Process/Resident Input	Number of stakeholders involved in the HIA process	Number of stakeholders will include Primary, Secondary, and Informant stakeholders
Transparency of the Process/Resident Input	Number of comments received/ incorporated into the HIA	
Data Assessment	The relevant health and equity data was researched or was recommended to be investigated	HIA Assessment is thorough and is well cited.

Table #25: HIA Outcome Evaluation Indicators		
HIA Value	*Indicator*	*Notes*
Health-Informed Program Implementation	Brownfield Program proposal is approved by City Council and is later created alongside a City Brownfield Advisory Council	
Health-Informed Program Implementation	Creation and enforcement of recommended healthy development checklist	Number of brownfield projects that create health services such as health clinics, urgent care, vision or dental care, parks, pharmacies, grocery stores, farmers markets, etc.
Health-Informed Program Implementation	Number of public meetings or workshops held to collect community input for prioritizing and informing brownfield redevelopment	Engagement indicators to assess: Number of advertising methods used to promote meetings, number of residents who attend meetings, amount of feedback received from meeting participants, representation of all stakeholders or community groups, provision of an environment that supports community dialogue
HIA Impact on Investment	Amount of state, federal, or local financial assistance geared towards City brownfield projects	Number of state or federal grants and number of local incentives distributed to City brownfield projects
HIA Impact on Economic Growth	Number of businesses created from brownfield redevelopment	
HIA Impact on Economic Growth	Number of jobs created from brownfield redevelopment	
HIA Impact on Economic Growth	Number of affordable housing units created from brownfield redevelopment	
HIA Impact on Community Quality	Property values	Assess changes in property values to identify ways to prevent gentrification and assess how Programming impacts communities
HIA Impact on Community Quality	City's Walk Score and Bike Score; Mileage of City trails and acreage of City park space; Number of City vacant properties; Percent of residents who live within a half-mile of a healthy food source; Percent of residents who live within a half-mile of a park/trail	Assess indicators that suggest that the program has enhanced the opportunity to make healthier choices
HIA Impact on Quality of Built Environment	Number of brownfield projects that create health or equity services	
HIA Impact on Quality of Built Environment	Difference between public investment into the Program and private investment into the Program	Indicates targets for fund allocation
HIA Impact on Quality of Built Environment	The reduction in brownfield sites through redevelopment projects	Amount of brownfield redevelopment within two miles of housing and public places like parks and schools

Appendix



Map #10: Census Tracts in Pinellas Park



Map #11: Proposed Brownfield Areas in Pinellas Park

Table #26: Assistance for Brownfield Redevelopment Initiatives

Entity	*Source*	*Funding/Incentives/Aid*
Environmental Protection Agency	https://www.epa.gov/brownfields	• Grant funding for assessment, cleanup, revolving loans, research and planning, and technical assistance and training that supports brownfield remediation • Assistance with severely contaminated brownfield sites with Super Funds and environmental insurance for unforeseen liability issues • Job training with their Environmental Workforce Development and Job Training Grants, as well as the Brownfields and Land Revitalization Technology Support Center which provides support to states, grantees, and EPA staff • Directory of Technical Assistance for Land Revitalization • Other useful resources are available through the EPA Office of Environmental Justice and Office of Underground Storage Tanks
Department of Housing and Urban Development	https://www.hudexchange.info/resource/3180/brownfields-frequently-asked-questions/	• Funding through the Community Development Block Grant, Section 108 loan guarantees, and Empowerment Zones that push community redevelopment, and economic growth
National Brownfield Association	https://www.eli.org/about-environmental-law-institute	• An abundance of resources as research, podcasts, periodicals, blogs, and publications, including the *Environmental Law Institute's Brownfields Tool Kit and Glossary*, Brownfield Resources and Petroleum Brownfields Resource Center, and the *Guidebook for Brownfields Property Owners* • Brownfields and Public Health Initiative, a campaign to ensure long term community sustainability by integrating public health with economic development, • Blight Revitalization Initiative for Green, Healthy Towns (BRIGHT), a program that allows the Environmental Law Institute to work with overburdened communities to identify corridors of blighted, vacant, and environmentally-impaired properties and develop a revitalization plan with the municipality, brownfield conferences, seminars, and workshops
Florida Department of Environmental Protection	https://floridadep.gov/waste/waste-cleanup/content/brownfields-program	• Voluntary Cleanup Tax Credit Program that provides voluntary cleanup participants with tax credit certificates • Clean Water State Revolving Fund which offers communities a permanent, independent source of low-cost financing infrastructure projects, • Sales tax refunds for eligible housing and mixed-use projects • Tax credits for qualified target industries that locate on brownfield sites as well as monetary bonuses for jobs created on brownfield sites
Florida Brownfield Association	https://www.floridabrownfields.com/	• Working in cooperation with FDEP and EPA, Florida Brownfield Associations is a group of environmental stakeholders and professionals who provide brownfields information, assistance and redevelopment strategies to communities
Florida Local Governments	http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0300-0399/0376/Sections/0376.84.html	• Tax increment financing • Enterprise zone tax exemptions, historic preservation tax exemptions, electric and gas tax exemption, and economic development tax abatement • Minority business enterprise programs, local grant programs for facade, storefront, or signage enhancements • Expedited permit and development applications, waived permit fees, impact fees or utility fees, and zoning incentives that reduce development review requirements

Table #27: Summary of Development Tools for Repurposing Brownfield or Vacant Sites		
Development Tool	*Description*	*Benefits*
Adaptive Reuse	Renovating an existing building for a purpose other than which it was originally designed for while maintaining a majority of its structural components	• Sustainable development that reduces construction waste and sprawl • Ties historical/cultural significance of existing structures to new development • Preserves open/green space • Takes advantage of unique architecture or building designs for new projects
Green Infrastructure	Infrastructure that makes use of natural systems to help manage stormwater and improve water and air quality	• Improved stormwater management which prevents flooding and reduces risks to people and property • Improved water and air quality • Increase in green space • Increased urban biodiversity • Creates an urban cooling effect that reduces energy needs • Passive irrigation for City plants • Encourages outdoor activity
Historic Preservation	A planning strategy that aims to preserve buildings and historical landmarks of historical significance by incorporating them into a place's cultural and economic fabric	• Encourage economic activity and tourism • Asset-based community planning that highlight the assets and culture of a community • Preserves historical landmarks for future generations to appreciate • Protects the investment of property-owners • Promotes community pride and sense of place
Smart Growth, Mixed-Use Projects	An development practice that concentrates growth in compact, walkable urban centers to reduce sprawl	• Mixed land uses reduce trip lengths which removes the need to drive which reduces traffic, decreases pollution from car exhaust, and increases physical activity of residents • Increased opportunities to walk or bike to destinations • Increases social interaction • Increases foot traffic into local businesses by making them more accessible to pedestrians and tourists • Reduces sprawl and preserves green space • Reduces energy needs and costs
Complete Streets, Shared Streets, Active Transportation	Streets designed to promote safe road use and to support mobility for all users including people of all ages and abilities be they drivers, pedestrians, bicyclists, or public transportation riders	• Mixed land uses reduce trip lengths which removes the need to drive, this reduces traffic, decreases pollution from car exhaust, and increases physical activity of residents • Creates safe streets that are comfortable for walking, biking, public transit, and driving • Decreases traffic incidences and fatalities • Increases community connectivity and accessibility
Community Gardens, Farmers Markets	Any piece of land gardened by a group of people in order to increase access to locally-grown, fresh nutritional foods	• Increases resident consumption of healthier foods which improves human health • Preserves green space • Increases community engagement and pride • Educational opportunities for people of all ages • Reconnects people with nature and the time-honored benefits of gardening

References

Former Chesapeake Supply Brownfield Revitalization: Rapid Health Impact Assessment. U.S. EPA Office of Research and Development Office of Brownfields and Land Revitalization. (2018). Retrieved from https://www.epa.gov/healthresearch/final-report-former-chesapeake-supply-brownfield-revitalization-rapid-health-impact

"Benefits of Brownfield Redevelopment in Minnesota". Minnesota Brownfields. (2018). Retrieved from https://www.pca.state.mn.us/waste/benefits-brownfields-redevelopment

"Brownfield: What are They". National Institutes of Health U.S National Library of Medicine. (2017). Retrieved from https://toxtown.nlm.nih.gov/sources-of-exposure/brownfield https://www.baltimoresustainability.org/brownfields/

Yacovone, K. "Brownfields and the Poor: Is Cleanup a Hazardous Waste of Time? An Analysis of the United States' Efforts at Remediation and Their Applicability to Brazil". Fordham International Law Journal, Volume 35, Issue 1. Article 4. (2016). The Berkeley Electronic Press. Retrieved from https://ir.lawnet.fordham.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=2423&context=ilj

Carroll, A. "Preparing for a Changing Climate – Resiliency and Brownfield Reuses". The EPA Blog. United States Environmental Protective Agency. (July 2014). Retrieved from https://blog.epa.gov/tag/social-vulnerability-index/

Litt, J.S., Tran, N.L., Burke, T.A. " Examining Urban Brownfields through the Public Health "Macroscope"". Department of Health Policy and Management, Johns Hopkins University, Bloomberg School of Public Health. Environmental Health Perspec tives, Volume 110, Supplement 2. (2002). Retrieved from https://ehp.niehs.nih.gov/doi/pdf/ 10.1289/ehp.02110s2183

ATSDR Land Reuse Health Program. Agency for Toxic Substance and Disease Registry. (2017). Retrieved from https://www.atsdr.cdc.gov/sites/brownfields/

National Environmental Justice Advisory Council (NEJAC) and Waste and Facility Subcommittee. "Environmental Justice, Urban Revitalization, and Brownfields: The Search for Authentic Signs of Hope. A Report on the ""Public Dialogues on Urban Re vitalization and Brownfields: Envisioning Healthy and Sustainable Communities"". The Environmental Protection Agency. (1996). Retrieved from https://www.epa.gov/sites/production/files/2015-02/documents/public-dialogue-brownfields-1296.pdf

Pricop, L. "A New Study Reveals that Urban Green Spaces May be an Antidote to Depression". Inhabitat. (2018). Retrieved from https://inhabitat.com/a-new-study-reveals-that-urban-green-spaces-may-be-an-antidote-to-depression/

Willis, B. "New Study Shows Environmental Racism and Economic Injustice in Health Burdens of Particulate Pollution in U.S." Sierra Club. (2018). Retrieved from https://www.sierraclub.org/press-releases/2019/08/new-study-shows-environmental-racism-and-economic-injustice-health-burdens

Berman, L., Orr, D., Forrester, T. "Improving Community Health: Brownfields and Health Monitoring". Environmental Practice, Vol ume 11. September 2009. Retrieved from https://www.atsdr.cdc.gov/sites/brownfields/docs/improving_community_health.pdf

Maantay, J. "Mapping Environmental Injustices: Pitfalls and Potential of Geographic Information Systems in Assessing Environ mental Health and Equity". *Environmental Health Perspectives*, Volume 110, Supplement 2. (April 2002). Retrieved from https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.02110s2161

Mock, B. "The Meaning of Blight". CityLab. (2017). Retrieved from https://www.citylab.com/equity/2017/02/the-meaning-of-blight/516801/

HUD USER. "Mitigating Neighborhood Blight". PD&R Edge Magazine (2018). Retrieved from https://www.huduser.gov/portal/pdredge/pdr-edge-featd-article-012218.html

Leon, E., Schilling, J. “Urban Blight and Public Health: Addressing the Impact of Substandard Housing, Abandoned Buildings, and Vacant Lots”. Urban Institute. (2017). Retrieved from https://www.urban.org/sites/default/files/publication/89491/2017.04.03_urban_blight_and_public_health_vprn_report_finalized.pdf

Maantay, J.A., Maroko, A.R. “Brownfields to Greenfields: Environmental Justice Versus Environmental Gentrification”. International Journal of Environmental Research and Public Health. (12 October 2018). Retrieved from https://www.semanticscholar.org/paper/Brownfields-to-Greenfields%3A-Environmental-Justice-Maantay-Maroko/7fad097e518769f7100136c0994fc654bfc7a3ce

Paull, E. “The Environmental and Economic Impacts of Brownfield Redevelopment”. Northeast-Midwest Institute. (2008). Retrieved from http://www.nemw.org/wp-content/uploads/2015/06/2008-Environ-Econ-Impacts-Brownfield-Redev.pdf

“Benefits of Brownfield Redevelopment in Minnesota”. Minnesota Brownfields. (2019). Retrieved from https://mnbrownfields.org/wp-content/uploads/2019/07/Benefits-of-Brownfield-Redevelopment-2019.pdf

Cotton, P. “What is a Brownfield Site? 6 Contaminated Sites Waiting to Go Green”. Stego Industries, LLC Stego Stories Blog. (2019). Retrieved from https://www.stegoindustries.com/blog/what-is-a-brownfield-site-6-contaminated-sites-waiting-to-go-green

“What is a ‘Brownfield’ Anymore?”. Brownfield Listings. (2015). Retrieved from https://brownfieldlistings.com/blog/post/what-is-a-brownfield-anymore

Robiglio, M. *The use Toolkit: How Cities can Turn their Industrial Legacy in Infrastructure for Innovation and Growth.* The German Marshall Fund of the United States. (2016). Retrieved from http://www.gmfus.org/publications/adaptive-reuse-toolkit-how-cities-can-turn-their-industrial-legacy-%E2%80%A8into-infrastructure

“Types of Brownfields Grant Funding: Summary of Grant Funding”. United States Environmental Protection Agency. (2017). Retrieved from https://www.epa.gov/brownfields/types-brownfields-grant-funding

“Brownfields FAQs”. HUD Exchange. (2012). Retrieved from https://www.hudexchange.info/resource/3180/brownfields-frequently-asked-questions/

“Brownfields Program”. Florida Department of Environmental Protection. (2019). Retrieved from https://floridadep.gov/waste/waste-cleanup/content/brownfields-program

Greene, R.B. “All of the Incentives Available for Brownfield Sites, One Place”. GLE Associates. (2016). Retrieved from https://www.gleassociates.com/brownfield-site-incentives/

McInttyre, A., Tyler, J., Wall, J., Wang, C. “Incorporating Public Health into Brownfield Redevelopment Frameworks”. (2013). University of Michigan Dow Sustainability Masters/Professional Degrees Fellows Program. Retrieved from http://sustainability.umich.edu/media/files/dow/Dow-Incorporating-Public-Health-Brownfields.pdf

Kirn, J.C., Galier, L.B. “Making Lemonade Out of Lemons: Opportunity Zones, Brownfields Redevelopment, and Environmental Considerations in Real Estate Deals”. The National Law Review. (2019). Retrieved from https://www.natlawreview.com/article/making-lemonade-out-lemons-opportunity-zones-brownfields-redevelopment-and

Black, C. “Urban Green Spaces”. World Health Organization. (2019). Retrieved from https://www.who.int/sustainable-development/cities/health-risks/urban-green-space/en/

“Brownfield Land Recycling Program”. Pinellas County Economic Development (PCED). (2019). Retrieved from https://www.pced.org/page/brownfield

Lewis, G. “Brown to Green: Sustainable Redevelopment of America’s Brownfield Sites”. Northeast-Midwest Institute Center for Policy Imitative. (2008). Retrieved from https://www.nemw.org/wp-content/uploads/2015/06/2008-Brown-to-Green.pdf

Meeks, S. “Density Without Demolition”. CityLab. (2017). Retrieved from https://www.citylab.com/equity/2017/06/historic-preservation-density-demolition/529821/

Office of Solid Waste and Emergency Response (OSWER). “The Path to Brownfields Assessment, Cleanup and Sustainable Redevelopment”. United States Environmental Protection Agency. (2008). Retrieved from https://www.epa.gov/sites/production/files/2015-09/documents/pathdiagram_web2.pdf

Office of Solid Waste and Emergency Response (OSWER). “Green Remediation Best Management Practices: Integrating Renewable Energy into Site Cleanup”. United States Environmental Protection Agency. (2011). Retrieved from https://clu-in.org/greenremediation/docs/integrating_re_into_site_cleanup_factsheet.pdf

“Petroleum Brownfields”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/ust/petroleum-brownfields

The 2019 Florida Statutes, Title XXVIII, Chapter 276, Statute 376.84: Brownfield Redevelopment Economic Incentives. (2019). Online Sunshine Official Internet Site of the Florida Legislature. Retrieved from http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0300-0399/0376/Sections/0376.84.html

“About Smart Growth”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/smartgrowth/about-smart-growth

“Cleanups in my Community”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/cleanups/cleanups-my-community

“What is Toxics Release Inventory”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/toxics-release-inventory-tri-program/what-toxics-release-inventory

Florida Brownfields Redevelopment Program Annual Report August 2018”. Florida Department of Environmental Protection. Retrieved from https://floridadep.gov/sites/default/files/2017-18_Brownfield_Redevelopment_Program_Annual_Report.pdf

“County Health Profile”. Florida Department of Health. Bureau of Community Health Assessment Division of Public Health Statistics and Performance Management. (2019). Retrieved from http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=ChartsProfiles.CountyHealthProfile

FLHealthCHARTS Community Map. Florida Department of Health Bureau of Vital Statistics. (2019). Retrieved from http://www.flhealthcharts.com/ChartsReports/rdPage.aspx?rdReport=ChartsMaps.chartsMapper&rdRequestForwarding=Form

2013—2017 American Community Survey 5-Year Narrative Profile. American Community Survey. United States Census Bureau. (2019). Retrieved from https://www.census.gov/acs/www/data/data-tables-and-tools/narrative-profiles/2017/report.php?geotype=place&state=12&place=56975

Suncoast Health Council 2018 Pinellas County Health Profile. Suncoast Health Council. (2018). Retrieved from http://suncoasthealthcouncil.org/data-and-publications/county-profiles/

Florida Department of Health in Hillsborough, Pasco, Pinellas, and Polk Counties Collaboration and Local Not-for-Profit Hospitals. “2019 Community Health Needs Assessment Community Survey”. BayCare Health System. Questionnaire. (2019).

Florida Environmental Public Health Tracking Data Explorer. Florida Department of Health. (2019). Retrieved from https://www.floridatracking.com/healthtracking/mapview.htm?i=8250&g=3&t=2016

Florida Department of Health in Pinellas County. “2018 Pinellas County Community Health Assessment”. Questionnaire. (2018).

An Equity Profile of Pinellas County. PolicyLink and PERE. (2019). Retrieved from https://unitepinellas.org/

“All Household, Cost Burden by Income, 2016 Estimate”. Florida Housing Data Clearinghouse. (2016). Retrieved from http://flhousingdata.shimberg.ufl.edu/affordability/results?nid=5248

“About Smart Growth”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/smartgrowth

“What is the Toxic Release Inventory?”. United States Environmental Protection Agency. (2019). Retrieved from https://www.epa.gov/toxics-release-inventory-tri-program/what-toxics-release-inventory

“Neighborhood Services (Community Compliance)”. City of Pinellas Park. (2019). Retrieved from https://www.pinellas-park.com/189/Neighborhood-Services-Community-Complian

Ballogg, M. “Brownfields to Healthfields: for the Federal Interagency Working Group on Environmental Justice Florida Healthfields Successes”. Cardno. (2015). Retrieved from https://www.epa.gov/sites/production/files/2016-03/documents/ej_iwg_rev_mgb.pdf

Todd, J. H. “Study Shows Substantial ROI on EPA’s Brownfield Cleanup Efforts”. Urban Land. (2014). Retrieved from https://urbanland.uli.org/news/study-shows-substantial-roi-epas-brownfield-grant-program/

Ballogg. M. “Brownfields to Healthfields: for the Federal Interagency Working Group on Environmental Justice Florida Healthfields Successes”. Cardno. (2015). Retrieved from https://www.epa.gov/sites/production/files/2016-03/documents/ej_iwg_rev_mgb.pdf

“Sites in Continued Use Southern Solvents Superfund Site”. United States Environmental Protection Agency. (2018). Retrieved from https://www.epa.gov/superfund-redevelopment-initiative/superfund-sites-reuse-florida#solvents

Langlie, K. “Healthy, green affordable housing in Downtown Tampa celebrates Earth Day”. 83 Degrees. (2016). Retrieved from https://www.83degreesmedia.com/features/encoretampa04916.aspx

“News and Events”. NJIT Technical Assistance to Brownfield Communities. (2019). Retrieved from https://www.njit.edu/tab/news/

“Health Impact Assessment”. National Association of County and City Health Officials (NACCHO). (2019). Retrieved from https://www.naccho.org/programs/community-health/healthy-community-design/health-impact-assessment

“About Social Determinants of Health”. World Health Organization (WHO). (2019). Retrieved from https://www.who.int/social_determinants/sdh_definition/en/

Rudolph, L., Caplan, J., Ben-Moshe, K., & Dillon, L. (2013). Health in All Policies: A Guide for State and Local Governments. Washington, DC and Oakland, CA: American Public Health Association and Public Health Institute.