Improving Health through Housing and Neighborhood Development in Galveston, Texas: Use of Health Impact Assessment to Develop Planning Tools and Coordinated Community Action

Since Hurricane Ike hit Galveston, Texas, in 2008, the island city has undergone a substantial recovery process including critical infrastructure and the built (physical) environment, as well as a healthy social environment. Hurricane Ike damaged 75% of the housing and buildings on the Island, including 569 units of public housing, of which only 60 units have been recovered to date. Neighborhoods near the bay, bayous, or lakes were devastated. One especially hard-hit neighborhood was the North Side, a historically African-American neighborhood, and the location of the majority of all public housing before the storm. The losses created challenges for many Galveston residents, especially those with the least means to relocate. At the same time, the rebuilding process creates an opportunity to make housing and neighborhood development choices that promote a healthier future for island residents with a history of neighborhood health challenges. The City of Galveston and Galveston Housing Authority have agreed to a plan to rebuild some of the public housing through two mixed-income developments, with the Texas General Land Office overseeing the development and management of additional scattered site housing units.

Box 1. What is a Health Impact Assessment (HIA) and how is it different from a Fair Housing Assessment?

"HIA is **not a health risk assessment**. HIA is a management tool to assess complex societal decisions that may have health implications and options for managing the health effects. It is not meant to just identify risks, and **its purpose is not to determine if a proposal or policy is a good idea of not.** HIAs offer recommendations to address data gaps, establish a monitoring framework, maximize benefits, and minimize risks." *Institute of Medicine, 2012*

Like most HIAs, this one includes a set of recommendations for decision-makers and the public that provide practical solutions to increase positive health impacts and mitigate, or reduce, negative health impacts. **It does not attempt to answer questions of whether public housing should be rebuilt in Galveston or how many scattered site units should be built on the island.** Nor does the study assert that health should be the only consideration in terms of where housing should be built. Rather, the focus is on identifying, then managing potential *health impacts* related to developing housing and to general neighborhood development in Galveston.

In contrast to a Fair Housing Assessment, this HIA does not take into account a number of indictors generally incorporated into such analyses, and does incorporate other indicators–because of their influence on health—that are not used in FHA's. Further, the methodology used in this HIA compares potential sites within Galveston, rather than grading them against a standard, which makes **the HIA analysis an inappropriate substitute for an FHA.**

Study purpose and recommendations. This Health Impact Assessment (HIA) uses an evidence-based approach to develop recommendations for improving the health of neighborhoods through supporting decisions related to the location and design of scattered site housing as well as broader neighborhood improvements. For scattered site development, the HIA offers a methodology for screening census blocks based on various health indicators that would most support the health of scattered site residents, a process for site selection, considerations for placing families in scattered sites and supporting their health, and interventions that would increase the number of census blocks with relatively higher scores in terms of positive health. Second, the HIA identifies priority neighborhood-wide interventions to address key community health needs for residents in general, and could be used by a variety of local governmental, civic, and community groups to enhance the livability, desirability and positive health impact of Galveston's neighborhoods. The full report details the relationship between each indicator and key health priorities in Galveston, and identifies interventions or mitigating actions that various groups—such as the City, community organizations, neighborhood developers, or scattered site developers—could take to improve indicators' impacts on health. Mitigation strategies can include changes to ordinances and codes, programs, services, infrastructures, or a home's physical design.

Box 2. Community engagement. This HIA was developed through a community-engaged process. Over twenty local representatives from governmental bodies and agencies, social services and health care organizations, the business community, and other community and civic leaders served on a Community Steering Committee (CSC), which has met over a period of two years to provide input into every phase of the research process. More than a dozen health-related subject-matter experts reviewed the research design and methodology. And over two dozen focus group participants comprised of residents from across the city who were receiving housing assistance provided perspective on the lived experience of many of the health indicators studied and their perceptions of specific barriers. The contributions of these individuals to the success of this work were invaluable.

The scientific link between housing, neighborhoods and health. Although the link between housing and health has traditionally focused on issues related to housing policy and physical structures, research increasingly demonstrates how broader environmental factors affect the health of residents. The physical and social environments of neighborhoods, for instance, affect behaviors and exposures that have positive and negative influences on health. Further, low income residents often disproportionately experience challenges extending to broader neighborhood conditions such as poor access to healthy food outlets and close proximity to industrial areas. These challenges, often called social determinants of health, correlate with a higher prevalence of health problems such as diabetes and cancer. This HIA frames healthy housing within a broader concept of the "healthy neighborhood," which is reflected in the indicators analyzed. Housing and neighborhood development policies can influence community health outcomes through multiple, complex pathways, simplified in Figure 1.

Figure 1. Pathways between policies, neighborhood and housing environments, and health.

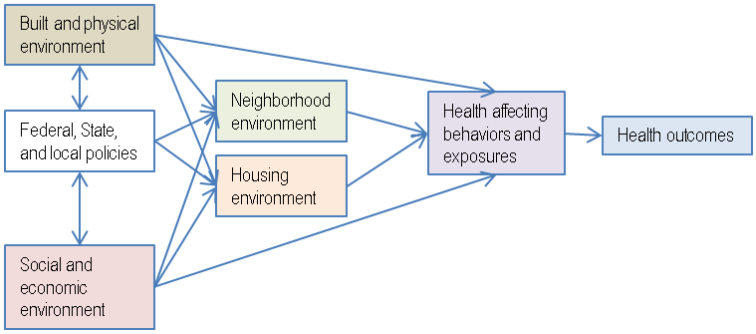


Figure 2. Map of Texas.

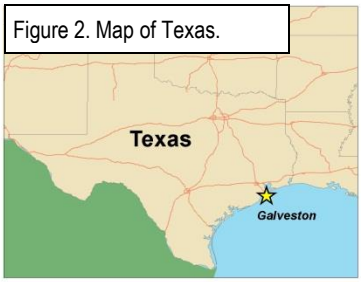


Figure 3. Map of Galveston City Limits.

Geographic boundaries and analysis level. This HIA analyzes available secondary data for the area within the Galveston city limits as well as Jamaica Beach, extending from the eastern end of the island to San Luis Pass and including Pelican Island. Data were available at the point, parcel, census block, or census tract level, with reporting of results at the at the census block level, using regression models to make census block estimations when only census tract data was available. In Galveston, a census block is typically one-half to one actual city block, in contrast to a census tract, which can extend dozens of city blocks or even, in the case of the west-end, for miles.

Approach. The HIA process identified 23 indicators that influence neighborhood health and address priority health issues for Galveston residents. The first 16 indicators—the Neighborhood-level indicators—use data from large, publicly accessible data sets, such as census data, and form the basis of the primary analysis.

Neighborhood-level (public data) indicators:

1. Population density
2. Concentrated poverty
3. Racial/Ethnic Diversity
4. Elevation above base flood level
5. Proximity to parks
6. Proximity to recreation facilities
7. Proximity to public elementary schools
8. Proximity to licensed childcare
9. Access to health care services
10. Proximity to affordable healthy food outlets and concentration of unhealthy food outlets
11. Density of businesses permitted to sell alcohol for off-site consumption
12. Presence of pedestrian safety measures
13. Proximity to truck routes
14. Proximity to industrial areas
15. Presence of environmental hazards
16. Proximity to bus route

The remaining 7 indicators require primary data collection that could be undertaken as potential scattered sites are evaluated or as infrastructure or neighborhood improvement plans are developed. A pilot project was undertaken to test the importance of these indicators in the Galveston context, and these indicators were judged relevant to the study.

Block-level inspection indicators:

17. Tree canopy
18. Sidewalk quality
19. Signs of physical disorder
20. Traffic calming
21. Resident pride and security

Unit-level inspection indicators:

22. Lead and toxic exposure (including soil)
23. Crime Prevention through Environmental Design (CPTED)

Many of these indicators affect multiple health conditions; for example, proximity to parks and recreation facilities and presence of pedestrian safety measures can all increase physical activity, which helps prevent a number of diseases including heart disease, stroke, and diabetes. The Assessment section of the full report and the extended technical report contain a more thorough discussion of each indicator, including scientific evidence linking each to health, and feedback from focus groups with low-income Galveston residents describing their perspectives on local health threats and barriers to health.

Methods and Findings

In general, findings and recommendations fall into two broad categories: those related to scattered site development and placement of families in specific units, and those related to general neighborhood development. The HIA methodology for the scattered site portion of the study uses a relative scoring system to identify how a variety of interventions could strengthen neighborhood health, including for scattered site residents. All of the populated census blocks in the study area (1754) were assessed in terms of the 16 neighborhood-level indicators. Blocks with higher scores did better across a wide range of the indicators, while those with lower scores sometimes had multiple challenges that would require more focused interventions. While there is no scientific basis for establishing a strict threshold for an acceptable score, the goal was to encourage scattered site development in areas of the city that better support resident health. Consequently, the score of the top 20% of census blocks in Galveston (350 of 1,754) was set as the threshold for relatively higher scoring blocks, though the number of census blocks achieving this score could be extended to include a larger percentage, or expanded through interventions and mitigations that would raise the score of some blocks.

Box 3. Priority health issues in Galveston. Though little health information is available specifically for City of Galveston residents, Galveston County residents are at greater risk than other Texans (and much worse than national averages) for diabetes, low birth-weight babies, preventable hospital stays, premature death, and risk of death due to stroke, cancer, kidney disease, chronic liver disease, unintentional injuries, and suicide (UWPHI, 2013). Levels of obesity and physical inactivity in the county are poor compared to national benchmarks.

Table 1. Priority indicators that would increase the number of higher scoring census blocks.

Indicator	Number of higher scoring blocks that would be added
Proximity to Truck Routes / High Traffic Streets	192
Pedestrian Safety Measures	108
Density of Alcohol Outlets	49
Proximity to Recreation Facilities	49
Proximity to Industrial Areas	49
Proximity to Health Care Services	48
Density of Less Healthy Foods	46
Density of Childcare Provider	45
Proximity to Park	35
Proximity to Grocery Store	24

Table 2. Impact of fully addressing various indicators in terms of general neighborhood development and health.

Indicator	#of Census Blocks affected	Est. Population Affected
Proximity to Recreation Center	933	30,425
Density of Alcohol Outlets	1,123	29,316
Presence of Pedestrian Safety Measures	2,936	26,030
Density of Childcare Providers	750	25,401
Proximity to a Grocery Store	1,015	25,125
Density to Less Healthy Food Outlets	879	24,834
Proximity to Truck and High Traffic Routes	770	20,780
Proximity to Park	3,224	18,693
Proximity to Elementary Schools	441	14,344
Proximity to Industrial Areas	215	5,740
Proximity to Bus Route	170	4,455
Proximity to Environmental Hazards	75	1,240
Proximity to Health Care Services	82	1,145

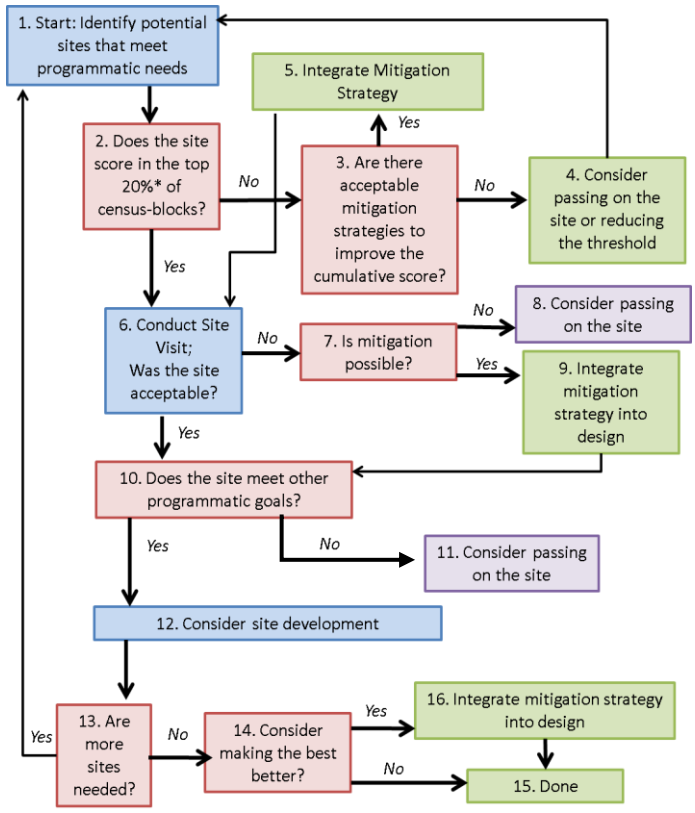
Table 1 shows the indicators that would most increase the number of census blocks receiving higher scores according to the various indicators, to guide scattered site development planning. The second column indicates the number of census blocks across the city that would be added to the higher scoring blocks if negative health impacts of the indicator were mitigated.

The methodology for identifying indicators most relevant to general neighborhood improvements examines indicators on an individual and threshold-determined basis. These findings can be used to assist neighborhoods in developing their own priorities for intervention. Table 2 shows the impact of each indicator in relation to the number of census blocks as well as the population across the city that is affected.

Recommendations.

These recommendations are intended to guide ongoing conversation: there is no singular answer to which sites to develop, which mitigations to implement, or which neighborhoods or neighborhood improvements to pursue; rather, the recommendations should be seen as a first step to ongoing community-participatory planning for improving our community.

Figure 4. Proposed Process to the GLO for Selection of Scattered Sites, in relation to health impact.



Scattered site development. The full report provides several recommendations to the State of Texas General Land Office, which is responsible for overseeing the development and management of scattered sites in Galveston as well as the placement of families in units. Additionally, the findings could inform the Galveston Housing Authority's development and implementation of the Human Capital Plan. Specific recommendations include:

1. **The GLO should follow an organized process** for incorporating health impact profiles and specific plans to address negative health impacts through mitigation into the process for selecting scattered sites (see Figure 4). Sites should be prioritized for development if they receive relatively higher health scores (based on the 16 neighborhood-level indicators listed previously), or if mitigations could be undertaken to address specific health challenges.
2. **The GLO should conduct inspections** at potential scattered site locations using block-level inspection indicators, and incorporate two additional unit-level inspection standards related to lead exposure and crime prevention (the full report includes a tool for conducting the site inspections). Also, evaluate the feasibility of unit-level health mitigations for sites that score poorly on specific neighborhood-level indicators.
3. **The GLO should incorporate specific health-related factors in placing families in specific scattered site units.** GLO has the opportunity to reduce the negative health impact of issues that cannot be or are not mitigated through the physical environment through its thoughtful placement of families in scattered site units. Once a scattered site is developed, it may have specific features that render it more

appropriate to particular household profiles. For instance, specific considerations could include transportation needs, proximity to social networks such as family members or place of worship, proximity to schools (for households with children), and the added vulnerability and sensitivity of children and the elderly to environmental conditions. Although family size and space needs are generally considered in assigning specific families to housing (e.g. minimum number of bedrooms for a given household size), most of the health indicators presented in this assessment and how those indicators may impact a specific family are not considered during family placement. Attending to a family's health and health needs in relation to other features (or indicators) of a particular housing site could help avoid health-harming conditions that might affect that particular family, but have little impact on another family. Consequently, even if all mitigation strategies for a particular site cannot be implemented, effective matching of families can help reduce potential health harms.

4. **The Galveston Housing Authority's Human Capital Plan (HCP)**, aimed at supporting public housing residents, should use the findings to inform HCP priorities and address needs of specific families and the primary needs of public housing residents in general. Such an approach could provide additional support to families' health and well-being through the Human Capital's key target areas of transportation access, job training, child development and education, and health and wellness initiatives.

Neighborhood development. It will also be important for neighborhood planners and developers to consider how they can best support health in the general population, including in relation to the ongoing Hurricane Ike recovery and other planning efforts by various groups. Neighborhood and city-wide improvements for a number of the indicators could be undertaken by the City and its divisions; community groups; and businesses and neighborhood plan developers, including those responsible for developing the anticipated North Side Neighborhood plan. Ideally, the findings presented here would serve as the beginning of a coordinated, multi-stakeholder, city-wide initiative to address neighborhood needs. This approach could have the greatest impact on healthy neighborhoods in Galveston and provide the greatest efficiency of action. Specific recommendations include:

1. **Local leaders** should convene community-engaged discussions to identify key indicators and priorities for the Galveston community and various neighborhoods.
2. **The City** should incorporate planning to address priority neighborhood health indicators (see Table 2) into infrastructure and community development plans, as well as ongoing review of ordinances and regulations. Specific current opportunities include activities related to the City of Galveston Families, Children and Youth Board's development of Renaissance Zones; the allocation of CDBG funds; and Industrial Development Corporation (IDC) and individual district-driven investments; among others.
3. **The developer of the North Side Redevelopment Plan, an initiative overseen by the GLO,** should engage a community dialogue to set neighborhood priorities, incorporate high priority indicators into redevelopment plans for that area of town, and use healthy design planning strategies throughout the planning process.
4. **The business community and large employers** in Galveston can play an important role in shaping neighborhood health by advocating for interventions that help make Galveston a desirable city to live, work, and play, in addition to ensuring their own policies and practices support such goals.
5. **Community based organizations** should engage coordinated planning to develop a strategy for long-term, sustainable improvements to community health, extending beyond the indicators related to the built and physical environment in this study to also include social and economic development issues critical to improving residents' health.

Conclusions

This Health Impact Assessment attempts to look holistically at how Galveston can best support healthy housing and neighborhoods within the context of public housing and neighborhood development, including but not limited to disaster recovery resulting from Hurricane Ike. The research provides a framework for supporting the development of healthy scattered site public housing in Galveston, as well as recommendations to support health-promoting decision-making for broader neighborhood and city-wide development. The recommendations highlight important roles for the City government, the business community, and community organizations to support livable, thriving local neighborhoods. It will be useful, therefore, if local stakeholders proactively and collaboratively bring the findings of this HIA, including data and analyses embedded in it, to the forefront of conversations and deliberations to support pro-health planning.

As Galveston continues to recover and move into the future, more opportunities to use this analysis will emerge. The approach presented here should be viewed as a living research project, and as new data related to the physical environment becomes available, it could be incorporated into this work. The research team and Community Steering Committee also welcome new partnerships for planning the local built environment as well as social and human capital. These partnerships, and the advancements they can achieve, are critical not only to the health of less advantaged communities in Galveston, but to the city's future as a whole.

Recommended citation. Nolen, LB; Prochaska, J; Rushing, M; Fuller, E; Dills, J; Buschmann, R; Miller, C; Tarlekar, S; Avey, H; Ruel, E; Oakley, D (2014). "Improving Health through Housing and Neighborhood Development in Galveston, Texas: Use of Health Impact Assessment to Develop Planning Tools and Coordinated Community Action." Center to Eliminate Health Disparities at the University of Texas Medical Branch, Galveston, Texas: www.utmb.edu/cehd.

Acknowledgements. The HIA research team thanks members of the HIA Community Steering Committee and Community Focus Groups for their generosity of spirit, commitment to improving health in Galveston, and significant donation of time for this project. This project is supported by a grant from the Health Impact Project, a collaboration of the Robert Wood Johnson Foundation and The Pew Charitable Trusts with funding from The Kresge Foundation. The views expressed are those of the authors (or other parties where noted) and do not necessarily reflect the views of The Pew Charitable Trusts, the Robert Wood Johnson Foundation, The Kresge Foundation, the University of Texas Medical Branch, or Georgia State University.

For more information on this project, and to access the full report of the HIA and the extended technical report, go to the CEHD website at www.utmb.edu/cehd.