

Community Health Design: A Collaborative Framework for Improving Public Health Outcomes

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The COVID-19 global pandemic has brought to light how public health outcomes are partially determined by governance and access to resources. In historically redlined communities, however, the availability and quality of neighborhood parks and grocery stores has been eroded by generations of disinvestment, leaving residents isolated as they work to build a healthier community. This paper shares the experiences of two community-led initiatives in Wyandotte County, Kansas, that have used community health design in collaborative settings to promote tangible improvements to green spaces and food systems during the pandemic.

Both community health design case studies give context for how designers can reframe their methods of participation and collaboration and put them in service to community members who are closest to the issues being designed for. Building upon historical methods of participatory design, socially conscious designers can adopt principles of community engagement from public health practitioners and apply innovative research methods throughout the design process. The theories, processes, and outcomes of community health design illustrate a framework of participatory decision-making where designers can find common ground with the communities they serve.

Though the pandemic did not introduce these conditions – park and food apartheid are symptomatic of a multi-generational epidemic of racism – this moment has highlighted the need for new ways of collaboration to address environmental health disparities. A framework of community health design is possible through the translation of community voices into a shared vision, designing governance structures to build community power, and turning design tools over to communities to define and achieve their desired public health outcomes.

A BRIEF HISTORY OF COMMUNITY DESIGN

One hundred years ago, Clarence Perry suggested that a ‘community consciousness’ could be formed through neighborhood meetings and group activities to form a ‘face-to-face fabric’ of mutual protection (Perry 1929). Perry’s recommendation was

that design at the scale of the neighborhood—working with community groups who shared a common interest—ought to be the setting for improving schools, repairing streetlights and sidewalks, installing playgrounds, and providing other amenities that exist within a short walk of individuals living in close proximity to each other. Paul Davidoff echoed Perry when he noted that city planning efforts were too hierarchical and tended to maintain the status quo of social and economic conditions (Davidoff 1965). Advocacy planning with communities, Davidoff argued, should include the consideration of multiple plans, with the final decision determined through a democratic process of deliberation.

Architects could be in solidarity with goals of the Civil Rights movement, as Whitney M. Young Jr. implored at the 1968 AIA Convention, through a commitment to dismantling systems of racism and oppression that are tangible in the built environment. How communities were engaged in that process was the focus of Sherry Arnstein, whose Ladder of Citizen Participation noted how some of the community engagement efforts of the Model Cities program in the 1960s tokenized the voices of residents that participated (Arnstein 1969). Shortly thereafter, the 1960s and 70s saw the emergence of community design centers that embraced grassroots participation and sought to build people power to improve neighborhoods (Sanoff 2000). Public participation, shared norms of democracy, and how these processes can influence the built environment has since been expanded upon in a variety of planning, landscape, and architectural design fields (Hester 2012; de la Peña et al. 2017).

Recognizing the lack of diverse voices leading these fields, Latinx urban planner James Rojas has developed his method of Place It!, an innovative form of participatory planning that highlights social justice issues as experienced by residents. In the wake of the murder of George Floyd, anti-racist design collectives such as the Design As Protest Collective, BlackSpace, and Dark Matter University are pushing for not only new methods of participation, but new pedagogies and praxes as well.

This abbreviated history of community design illustrates how built environment professionals (BEP) have evolved their approach from designing for communities to designing with communities, and the growing emphasis on designing justice into the built environment. In the devastation wrought by the

COVID-19 global pandemic, there exists an opportunity for evidence-based design to join community design to improve public health outcomes. A better understanding of how the built environment is shaped by decisions at a neighborhood scale—and the consequences of those decisions represented in public health—can guide BEPs to use design to shape not only the built environment, but also the decision-making process itself. Rather than using design as a service for clients that acts upon communities, a blended framework of public health, urban planning, and architectural design can reinforce in an interdisciplinary praxis of Community Health Design (CHD). The goal of BEPs engaged in CHD is to use design to translate public health evidence to help make decisions in the built environment more accessible, and then use participatory methods to share decision-making power with those communities most impacted and seeking to improve their neighborhoods.

This paper presents two frameworks of CHD based upon case studies of their application during the COVID-19 pandemic, where communities led the design process to address public health issues in their built environment. In this context, community refers to any group that shares a common interest and can be defined either by a shared geography, culture, or other unifying characteristic; health includes the individuals, institutions and policies that either impact an individual's health, address health disparities in the built environment, or work towards improving public health outcomes; and design represents the collaborative process of developing elegant solutions to societal problems, including the decision-making process that influences the process. Taken together, CHD frameworks invite BEPs to be explicit in using democratic methods of public participation to serve communities and develop collaborative proposals of environmental design to improve public health outcomes.

BACKGROUND

Dotte Agency is a community-based design collaborative co-founded by Shannon Criss, Nils Gore, and Matthew Kleinmann in 2014 at the University of Kansas, School of Architecture and Design. Our impetus in creating Dotte Agency was to bring the energy of the design studio and the creative output of our students to serve the needs of residents living in Wyandotte County, Kansas. The name of our informal collaboration was a portmanteau of 'Wyandotte County Spatial Agency', acknowledging the importance of Spatial Agency on our approach to designing with communities (Awan, Schneider, and Till 2013). Our goal was to support the transformation of the built environment by meeting communities where they were and translating their voices to design proposals that would improve health outcomes in the built environment. This focus included methods of urban design, participatory design, evidence-based design, and design/build, and architecture students at the University of Kansas, School of Architecture and Design have been our co-collaborators in the design process. The two case studies that illustrate frameworks of CHD—the Green Team Toolkit and the Dotte Mobile Grocer—both have their roots in Dotte Agency collaborations.

The Green Team Toolkit builds upon the 2017 Active Living Trails project, a community health design that sought to improve access to walking trails and park amenities in two parks in Kansas City, Kansas. Dotte Agency partnered with the Gehl Institute, local community partners, and neighborhood associations to design and install trail signage, wayfinding, trails, seating, and park amenities. These elements were prioritized through a participatory mapping process and park observations, where residents were invited to share what they would like to see in their parks. Despite a modest budget, colorful improvements to the public spaces encouraged residents to use available walking trails and enjoy their parks. In addition to the new elements that were installed, new relationships between community residents and organizations were formed that have continued to build the capacity of those where were engaged. The methods and process of the Green Team Toolkit adapt the process and experiences from the Active Living Trails to propose a site-specific application of community health design (Figure 1).

The Dotte Mobile Grocer is a community-owned and led effort to bring fresh, affordable food to the residents of Wyandotte County, Kansas. Originally conceived by public health and food assistance partners, the initial goal of the mobile market was to serve Wyandotte County food deserts, defined as areas where there were few grocery stores and residents had lower rates of car ownership. To ensure that the specific locations served, food items available, and other details of the project were informed by community members living in those areas, a Mobile Market Community Council (MMCC) was formed. The MMCC used participatory design, with Dotte Agency and other community partners facilitating the community health design process, to develop the Dotte Mobile Grocer. The mission of the MMCC is to bring fresh, affordable food to Wyandotte County residents. To guide their process, the MMCC followed a shared governance framework that established how decisions were made, what membership looked like, and how the group communicated with one another. The goal of launching the Dotte Mobile Grocer was setback in 2019, however, when the backbone non-profit supporting the project experienced financial difficulties and was forced to withdraw their support of the MMCC and the Dotte Mobile Grocer. In response, the residents of the MMCC took ownership, with the intent to launch in the spring of 2020—just as the pandemic hit. The experience of community members organizing together to improve access to fresh food through participatory design and shared governance represents a systems-based application of community health design (Figure 2).

THE GREEN TEAM TOOLKIT

The Green Team Toolkit represents a site-specific CHD approach to restoring vacant lots and disinvested parks in the Northeast Area of Kansas City, Kansas (NE KCK). The development of this process included youth-based participatory action research, where the youth that were engaged in the process co-led the development of questions and workshops that they used to engage with their community. The youth were organized by



Figure 1. The Green Team Toolkit. Photo by Matthew Kleinmann.



Figure 2. The Dotte Mobile Grocer. Photo by Matthew Kleinmann.

Groundwork NRG, a neighborhood-based revitalization organization that serves the residents of NE KCK. Groundwork NRG launched the Green Team with six youth members in 2020 to promote environmental justice, provide green workforce training, develop green infrastructure projects in Wyandotte County.

Learning from the previous collaboration on the Active Living Trails project, the Green Team Toolkit proposed a process that would follow guidance from the Design As Protest (DAP) Collective – a national coalition of racially diverse BEPs focused on design justice in the built environment. The proposal for the Toolkit was to develop a youth-led approach to designing green spaces that could serve as an alternative to CPTED (Crime Prevention Through Environmental Design). The use of CPTED is common among neighborhood associations and violence prevention organizations that want to clean up underutilized green spaces and reduce the prevalence of violence in their built environment. The process of CPTED is based upon the Broken Windows Theory, which posits that the presence of dilapidated structures, litter, and debris invites undesirable behaviors including violence, therefore encouraging activities such as community trash cleanups. This theory aligns with, and is often in led in conjunction by, community policing efforts. The result is an increased focus of policing in areas where signs of disinvestment are visible. In response, the DAP Collective has

criticized the use of CPTED tactics in communities of color, where an increased police presence may also disproportionately contribute to over-policing and increased rates of incarceration in communities of color.

The Green Team Toolkit was framed as a collaborative process that was co-led by youth living in the NE KCK area that was the site for the projects being proposed. The Green Team used a participatory process to work directly with communities living adjacent to the green spaces that they were focused on, and they invited neighboring residents to share their ideas for green infrastructure improvements in each space. By adapting community engagement methods from the Active Living Trails project, Green Team members worked to design, prototype, and deploy multiple iterations of their participatory mapping tool and related activities. Youth participants researched green infrastructure elements and tested various methods of data collection, including surveys, participatory budgeting, and storytelling. Over the course of the year, three workshops were held in the NE KCK area, with community members invited to attend. After each workshop, the Green Team worked to implement quick-build projects using environmental design, installing tangible improvements in the natural and built environment of each site.

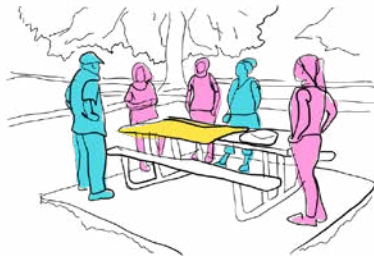
COMMUNITY HEALTH DESIGN: SITE-SPECIFIC

1. Observe



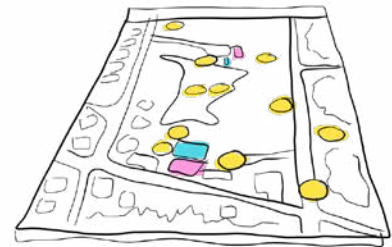
Be Present

2. Mobilize

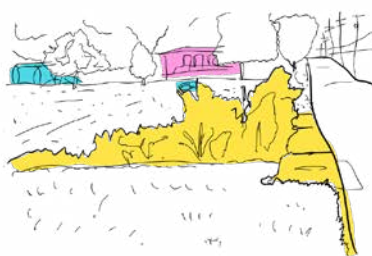


Form a Coalition

3. Identify



Translate the Built Environment



Walk the Site



Co-Define Success



Invite Public Participation

Figure 3. Community Health Design: Site-Specific Approach. Diagram and Illustrations by Matthew Kleinmann

The Green Team Toolkit follows a site-specific approach to CHD by framing the restoration of green spaces as a reciprocal process that begins with observing the built environment, mobilizing the community around those issues, identifying opportunities for CHD interventions, responding to them quickly, and then celebrating the collaborative work (Figure 3). The Green Team did this through the organizing of a community block party on the vacant lot that Groundwork NRG had acquired. The Green Team distributed fliers and social media posts inviting neighborhood residents to attend. Groundwork NRG staff also made frequent trips to the site in the weeks leading up to the first workshop to familiarize themselves with their neighbors. The Green Team worked internally to co-define their goals for the project, and later invited community participation to co-define with them what success would look like.

Green Team members worked together to translate site constraints and opportunities into accessible maps that were rolled out on magnetic tabletop surfaces. The maps included cards that were collaboratively designed and placed on magnetic bases, featuring green infrastructure elements that were researched by Green Team members, and then placed on the map by participating residents. Subsequent iterations of this process incorporated participatory budgeting and storytelling to help them prioritize which green infrastructure elements the community most wanted to see be implemented. For each iteration of the tool, Green Team members refined their process with each other and with community leaders before sharing their process with the broader public.

A key feature of CHD when applied to site-specific projects is the responsiveness of the design proposal. Providing immediate feedback builds trust with community partners who can see that not only were their voices heard, but that action was taken soon after they shared their perspectives. This is a space for BEPs engaged in design/build and rapid prototyping to translate community-led visions into tangible creations that build momentum and acknowledge the contributions of community members in real-time. This contrasts with typical delays in urban planning and architecture, where years can sometimes pass before proposed changes are made, further eroding trust between the community and those who seek to serve them. The Green Team was able to do this by hosting workshops and immediately following up with implementation workdays, revisiting the site periodically to incrementally install green infrastructure improvements each week.

The conclusion of a CHD project is to celebrate the contributions of the community members that participated. Embedded aspects of fun within the collaborative process and at the final design creates moments of playfulness, where public recognition of the joy that the design brings can build stronger bonds between participants. Community partners that were critical to the success of the project can also be lifted up through invitations to tell their stories, co-author final reports, and share in

the successes of the project by highlighting their involvement. A benefit of being intentional about celebrating the work is that future projects can build upon a foundation of successful CHD collaboration. As part of the Green Team Toolkit, the Green Team members have been invited to co-author the toolkit as a process manual for Groundwork NRG to use with future cohorts, while the researchers involved in the projects are collaborating on a methodology paper outlining the process of youth-based participatory action research in environmental justice with the staff of Groundwork NRG.

THE DOTTE MOBILE GROCER

In historically disinvested communities where access to fresh food is limited, mobile market grocery stores (mobile markets) are designed as grocery stores on wheels. By bringing an assortment of fresh produce and shelf-stable food items to areas where there exists a lack of access to fresh or affordable food, designing and building mobile markets are a CHD approach to addressing systemic issues; in this case, designing a response to broken food systems. However, like any CHD initiative, it is critical to meet communities where they are design with people.

While various methods of community engagement are used by mobile markets to build trust, researchers and funders focused on food systems are increasingly calling for more empowering forms of public participation in addressing food access and health disparities (Enderton, Bregendahl, and Topaloff 2017). In developing a mobile market that would be led by community members, local health organizations in Wyandotte County, Kansas, recruited residents to form the Mobile Market Community Council (MMCC) and introduced a shared governance framework to guide their collaborative decision-making process. The MMCC worked together using participatory methods of design to develop the mobile market and its programming, but also their response to COVID-19 when the pandemic began.

As part of a CHD systems-based approach to addressing the food system of Wyandotte County, the Dotte Mobile Grocer worked to meet people where they were through community engagement; drawing out where health disparities existed; using evidence-based design that informed community-led decision-making; and using participatory design to lead the delivery of services through rapid prototyping and iteration (Figure 4).

The MMCC applied the system-based CHD approach during the pandemic when they identified where the need for fresh food was greatest among the community locations that they had already engaged. Previously, the MMCC had defined community locations they wanted to partner with through a participatory mapping process. This process had led to changes in a local zoning ordinance that allowed for mobile markets to operate in residentially zoned areas. This process was revisited to define where the Dotte Mobile Grocer would distribute USDA food boxes, which was the federal government food distribution program launched in 2020 to distribute food commodities valued on

average at \$41.39 per box. Using this program, the Dotte Mobile Grocer distributed 16,541 USDA food boxes between October, 2020, and May, 2021.

As a component of CHD, drawing out the process works to visualize the relationships between systems being designed for. In the case of the Dotte Mobile Grocer, this included drawing the relationship between sources of grant funding, organizational structures, and the layout and setup for community locations where food was to be distributed. Each instance of drawing out the systems-based approach was shared between the MMCC and community partners to better communicate the complex nature of trying to organize money, people, and food to serve people. Illustrations of how connecting partners and locations would relate to one another helped the MMCC secure funding from the CARES Act and support the hiring of two staff members to distribute food on the Dotte Mobile Grocer. Making this process visible – through either diagrams, photographs, videos, or other visual representation techniques – can help anchor CHD conversations so that there is a clear understanding of what is being proposed (and what systems can be improved upon).

A challenge in systems-based CHD is overcoming the decades of disinvestment that has contributed the current situation. However, research on how systemic disinvestment has a negative impact on public health outcomes is common. The use of evidence-based design that responds to negative public health indicators in hopes of changing the outcomes can attract interest from community partners and funders looking for new ways to address systemic issues that have seen little traction thus far. In Wyandotte County, previous reporting had demonstrated that 21% of the population was considered food insecure, a condition where a family reported having their money run out before they could buy more food. Understanding that evidence-based design would allow for their efforts to demonstrate improvements on the status quo, the MMCC worked together to design two food insecurity questions and included them in a survey linked to a QR code included in each of the USDA food boxes. The data showed that the food insecurity among the people receiving a USDA food box from the Dotte Mobile Grocer was 86%, indicating an extremely high demand for food during the pandemic.

What separates systems-based CHD from conventional community engagement is the goal of having community ownership at the outset of the decision-making process. This requires clear and accountable communication that is transparent to all participants. To hold each other accountable, a framework of shared governance may be used to explicitly define how power is shared between the participants, who holds decision-making power, and how information is shared among participants. The role of CHD is to use design to facilitate and illustrate the community prioritization process, translating available options in an accessible format to create a shared understanding among participants. In the case of the Dotte Mobile Grocer, the MMCC decision to temporarily pivot to the use of USDA food boxes was

made by the resident members of the MMCC. Together, they collaborated with community partners to support the staffing, scheduling, and logistics of transporting 120 food boxes five days a week for eight consecutive months during the pandemic.

The decision-making process used by the MMCC included the building of consensus and consent, with the intent that community members who disagreed with the outcome of a decision (or the lack of one) could at least have a transparent understanding for why others in the group came to a decision. During this process, members of the MMCC at times withheld their consent on decisions to express their desire that the group instead focus on their longstanding mission of bringing fresh, affordable food to Wyandotte County. As a function of CHD, the ability for community members to say, “no” reflects an ownership of the systems-based approach by the community. This requires that BEPs engaging in CHD see their primary role as a facilitator that serves the community by guiding them through community-owned decision-making while using appropriate and accessible methods of participatory design to visualize decision-making. Having community-ownership embedded within CHD can serve as a bulwark to criticism that is common in systems-based work, where multiple options may exist to meet demanding community health needs. A decision-making process that is transparent, accessible, accountable, and tangible can help to ensure that the people closest to the systemic problems being designed for are participants in the design process and its outcomes.

The last step in a systems-based approach is to deliver on what has been proposed. The MMCC delivered upon their mission by having the Dotte Mobile Grocer be present in the community and serving as an accessible resource of food for their community partners. However, because systemic health disparities are often the result of decades of disinvestment, finding traction in CHD can be challenging. If not managed carefully, broken promises and unrealistic expectations can do more harm than good. To build the capacity of the community to address systemic issues, strategies that include ‘small bet’ tactics – where realistic and tangible goals can be accomplished – can help to build momentum and awareness around the systemic issues being addressed. The Dotte Mobile Grocer itself is a rapid prototype, where the design and fabrication of a mobile market vehicle supplies a proof of concept that barriers to food access continue to persist for a percentage of the population. While the Dotte Mobile Grocer does not solve the issue of inequitable access to fresh food in Wyandotte County, it does raise questions about the how urgent food insecurity needs are being addressed during the pandemic, and how dependent our food systems are upon accessibility. A systems-based approach of CHD is thus iterative, where actionable steps lead larger conversations and support the foundation of new partnerships and collaborations to tackle the systemic issues being addressed.

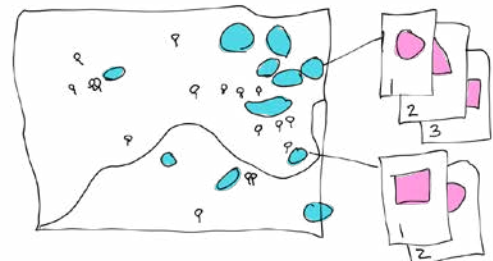
COMMUNITY HEALTH DESIGN: SYSTEMS-BASED

1. Define The Problem



Meet People Where They Are

2. Draw It



Map Health Disparities

→
*Community Engagement
Advocacy*

↑
*Rapid Prototyping
Pilot Projects*

↓
*Evidence-Based Design
Data Translation*

4. Deliver



Follow Through on the Proposal

3. Decide Together



Facilitate Community Prioritization

←
*Participatory Design
Shared Governance*

Figure 4. Community Health Design: Systems-Based Approach. Diagram and Illustrations by Matthew Kleinmann

CONCLUSION

The two frameworks of CHD presented in this paper reflect the complexity of navigating the social and political factors of health that the built and natural environments both act upon and are influenced by. In site-specific CHD projects, observations and community mobilizing can serve identify issues that can be collaboratively designed for and celebrated, thus building capacity with community partners. In systems-based CHD initiatives, defining the issues being addressed and organizing community members to have ownership of the decision-making process can lead to the rapid prototyping of small bet projects, while also exploring the larger issues that are affecting the health of a community on a systemic level.

The two case studies of the Green Team Toolkit and the Dotte Mobile Grocer can serve as precedent for BEPs looking to use their design skills to improve public health outcomes while supporting the goals of a community. Both examples reflect how

CHD more broadly can be operationalized as a praxis to deploy collaborative frameworks of site-specific and systems-based design to improve public health outcomes. Other BEPs engaged in efforts related to CHD should consider how their processes and methods of participatory design work to build the capacity of the communities that are being engaged with, who owns the outcomes of their design process, and how the process can serve to improve public health outcomes at either a site-specific or a systems-based level.

The global pandemic of COVID-19 is a public health crisis that will continue to expose the underlying health disparities that are latent in built and natural environments. Built environment professionals looking to respond to those environmental injustices should consider how methods of participation and governance can be translated and made more accessible through their design, so that the people closest to the problems are leading the solutions.

ENDNOTES

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