

(RE)CODING NYC'S HOUSING

DENSITY AND RESILIENCE AT A NEIGHBORHOOD SCALE

**EXPERIMENTS ON ADDED DENSITY AND NEIGHBORHOOD FACILITIES
TO (RE)BUILD COMMUNAL NETWORKS**



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I. MANIFESTO

Neighborhoods are small cores of social life within cities.

They concentrate social infrastructure – facilities that provide essential public and private services to improve shared life – and accommodate to different levels of housing density. For that reason, defining the actual capacity that neighborhoods can develop to effectively house more residents is a fundamental question in our inquiries for shared spaces and cooperative living.

This carrying capacity of neighborhoods needs to be approached from several angles. First, we need to understand the change over time in residential density within a single neighborhood. Density in residential areas of New York City varied significantly during the 20th century, peaking in the 1950s but then declining as the fiscal crisis in the city worsened.

New York has installed capacity to house more residents – and we can radically reimagine how these new households can access shared spaces.

In consequence, we also need to look into the historic offer of social infrastructure in neighborhoods to understand the ways in which the city has actually addressed more density.

However, the common plight of cities during the coronavirus pandemic has highlighted the positive effect that neighborhoods can have in order to create more resilient communities. Imagining better neighborhoods is a way to improve access to healthcare, to enhance food security, and to provide safe means to enjoy open spaces. Perhaps now more than ever, urban areas will be in need of strong neighborhoods to rebuild a shared sense of community.

Advocating for increasing density during a pandemic may seem paradoxical, at best. Social distancing, as the underlying principle that lies at the base of the withdrawal from public spaces, has proven to be a successful mechanism to mitigate the effects of the virus.

We believe that creating stronger and resilient neighborhoods not only is an answer to the public health crisis; it is, at the same time, a pivotal opportunity to address spatial problems that have been perpetuated by the uneven development of the built environment.

II. CURRENT DEBATES ON DENSITY

COVID-19 has called into question the future of urban density. As the pandemic unfolded, elected officials and media outlets across the globe began to question whether urban density was to blame for the rapid spread of the disease. For example, public health experts argued that “density was likely the biggest reason for why the virus has torn through New York City and not yet hit to the same degree elsewhere,”¹ and the New York State Governor tweeted about a “density level in NYC that is destructive.”² In response to these statements, some began to question whether living in dense urban environments was in fact “worth it,” citing rising rents, widening inequality, and the fact that urban areas across the United States were epicenters of COVID-19. Some even called for a back-to-the-suburbs movement.³

However, others were quick to point out that urban density is not to blame for the rapid spread of COVID-19, citing ample evidence that public health outcomes are actually better in urban areas than in rural ones.⁴ As public trust in dense urban environments has by all accounts eroded in the past couple of months, the question of whether and how to continue investing in dense urban forms will have lasting effects on cities in the years to come.

Among critics, density is the perfect condition for a virus to expand rapidly and uncontrolled. In consequence, “as a result of the association between dense urban settlements and disease transmission—a phenomenon referred to in public health as the ‘urban penalty’—dispersal from cities has sometimes been viewed as an effective response to infectious disease outbreaks.”⁵

We have witnessed how the closure of public spaces and community facilities, such as schools and “non-essential” businesses, has been heralded as the main tool to curtail contagion. It is, in its own way, another kind of urban penalty.

Yet, as we have seen in the past several months, urban flight tends to deepen socio-spatial inequality, as wealthier households are better able to flee dense environments than the urban poor. Indeed, the wealthiest neighborhoods in New York City witnessed the steepest population losses after the pandemic, as wealthier households were able to flee the city for second homes, while population losses barely registered in low-income communities and communities of color.⁶ This flight of wealthier, white residents from urban centers is one that US cities know all too well.

Density is not to blame for the rapid spread of COVID-19. Inequality and structural racism are to blame. Unequal access to quality health care, crowded living arrangements in communities of color and immigrant communities, and the fact that low-income communities were disproportionately represented on the “front lines” – all products of structural racism – facilitated the spread of the disease. Thus, the fundamental danger of the anti-density argument (i.e. “blaming dense apartment buildings, which are inanimate objects, for what are social, human problems”)⁷ is that it shrouds the root cause of the issues: urban inequalities.

In this paper, we make the case for urban density, describing how it has helped facilitate a number of positive social outcomes and

should remain an objective that planners and designs strive for in future planning efforts. In particular, we examine how density helps to build strong social fabrics and solidarity, “or the interdependence between individuals and across groups.”⁸ We push back against anti-density rhetoric by shedding light on where density is a neighborhood asset, and where density could help to create more robust and resilient communities. To this end, we examined the current debates around urban density to understand how it can become an asset for localized planning efforts. We also constructed a spatial analysis tool to illustrate where increased density can have positive effects – by creating proximity to community facilities and public services – in the city.

This paper is structured as follows: In the following section we define urban density and review how planners and scholars have framed its benefits for advancing greater social, economic, and environmental outcomes. In the next section, we present a case study from a neighborhood in the Bronx, where density translates into access and connection to the rest of the city. In the final section, we explain the criteria behind a spatial analysis tool to map social and environmental vulnerability, as a way to identify pending social needs in neighborhoods that have the capacity to be more dense, but require additional infrastructure to effectively house more population.



This is not life as usual.

There is a density level in NYC that is destructive.

It has to stop and it has to stop now.

NYC must develop an immediate plan to reduce density.

#StayAtHome 🏠

11:36 AM · Mar 22, 2020 · Twitter Web App

5.3K Retweets 25.8K Likes

The argument against density by the New York State Governor, March 22, 2020.

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- ⁵ Michael Hooper, “Pandemics and the future of urban density: Michael Hooper on hygiene, public perception and the ‘urban penalty,’” Harvard University Graduate School of Design, April 13, 2020. Retrieved from: <https://www.gsd.harvard.edu/2020/04/have-we-embraced-urban-density-to-our-own-peril-michael-hooper-on-hygiene-public-perception-and-the-urban-penalty-in-a-global-pandemic/>

According to cell phone data analyzed by the New York Times, “roughly 5 percent of residents — or about 420,000 people — left the city between March 1 and May 1. In the city’s very wealthiest blocks, in neighborhoods like the Upper East Side, the West Village, SoHo and Brooklyn Heights, residential population decreased by 40 percent or more, while the rest of the city saw comparably modest changes.” Kevin Quealy, “The Richest Neighborhoods Emptied Out Most as Coronavirus Hit New York City,” *The New York Times*, May 15, 2020. Retrieved from: <https://www.nytimes.com/interactive/2020/05/15/upshot/who-left-new-york-coronavirus.html>

⁷ Kate Wagner, “Don’t blame dense cities for the spread of coronavirus,” *Curbed*, April 22, 2020. Retrieved from: <https://www.curbed.com/2020/4/22/21224935/coronavirus-density-debate-mcmansion-hell-kate-wagner>

⁸ Eric Klinenberg, “We Need Social Solidarity, Not Just Social Distancing,” *The New York Times*, March 14, 2020. Retrieved from: <https://www.nytimes.com/2020/03/14/opinion/coronavirus-social-distancing.html>

III. DEFINING DENSITY AND ITS BENEFITS

Dense cities have long represented one of the golden pillars of sound urban planning practice. Since the early 1990s, planners, policymakers, and environmental advocates have touted the benefits of urban density, calling out the linkages between compact urban form and sustainability. According to these advocates, compact cities advance a range of positive social, economic, and environmental outcomes, from lowering carbon emissions to encouraging greater productivity as close proximity between firms and entrepreneurs encourages greater innovation in dense urban spaces.

Past research outlining the benefits of urban density is vast. While a review of the urban density literature is beyond the scope of this white paper, this section will briefly review some of the primary themes that emerge from the literature, including how a) scholars and practitioners have defined high-density housing and b) how scholars have framed the benefits of urban density.

What is high-density housing?

Although planners have leveraged multiple definitions of housing density over time, “discrete planning densities,” or densities where the numerator is a discrete item (e.g. the number of observed housing units) over a spatial denominator (e.g. a given areal density) have typically been leveraged to define housing density. For example, planners often examine the number of dwelling units per hectare as a standard measure of housing density. The definition of what constitutes high-density housing, however, largely depends on local context, but generally refers to a “density that is higher than what is typically found in the existing community.”

For example, in a relatively sprawling area, single-family homes that are sited on one-fourth or one-eighth of an acre might be considered high-density development in the local context, while the same would not be true in a comparatively more dense area, such as New York City.

In New York City, planners typically also quantify high-density housing by examining the floor area ratios (FAR) of buildings. The floor area ratio sets the maximum allowable

What are New Law Tenements?

A Paradigmatic Example of High-Density Living in New York City

Density has long been a core feature of the built environment in New York City. After decades of accelerated growth, planners and policymakers started to raise the alarm bells about the often crowded and substandard living conditions in many tenement buildings in New York City. In response, the New York State legislature passed the Tenement House Act of 1901, which allowed for the creation of dense, multi-family housing that were instrumental to achieving New York City’s high level of dense living.

New Law Tenements were built between 1901 and 1930 and conformed to the Tenement House Act’s new standards for achieving greater light and air. Under the New Law, all rooms were required to have a window and all apartments were required to have a bathroom. Apart from setting more stringent public health standards, the New Law Tenements were unique in that they fostered low-rise, high-density living. Today, New Law Tenements comprise more than 60% of the housing stock of the city.

development capacity of a building by defining the ratio between the building's total floor area and the size of the parcel that the building is located on; thus, buildings with higher FARs are often able to build at higher densities. FARs range considerably throughout New York City, with some lower-density areas of Queens having FARs as low as 2, whereas higher-density buildings in Manhattan can have FARs of 10 or higher.

What are the benefits of urban density?

A wide body of literature has examined the relationship between density and economic, health, and environmental outcomes. Writing on the economic benefits of urban density, previous scholarship has examined how urban density contributes to a host of positive economic outcomes. According to this scholarship, urban density helps to increase the flow of ideas and innovation, as the greater proximity of firms better encourages face-to-face contact between individuals working on shared problems. This dynamic is instrumental in creating so-called knowledge spillovers, in which the vast circulation of ideas in urban areas help to encourage innovation, induce competition, and prompt “intellectual change, as urban innovators riff off each others’ ideas.” For such scholars, the high concentration of economic activities, made possible through dense urban forms, explains much of the variation in overall economic productivity among cities.

Other scholarship has focused on examining how density interacts with social and health outcomes. For example, scholars have hypothesized that dense urban areas are more likely to facilitate positive social outcomes, as dense urban areas tend to be home to a high concentration of social services, potentially helping to connect marginalized communities with educational resources or social services. In terms of public health, scholars have hypothesized that dense urban areas, which tend to be more walkable, facilitate positive health outcomes and better mitigate isolation, particularly

among senior citizens. Scholars indeed have affirmed that dense urban communities facilitate improved public health outcomes. For example, Iravani and Rao examine dense new urbanist communities and find that new urbanist communities are associated with higher usage of non-motorized transit and lower usage of automobiles, resulting in higher physical activities. It is worth noting, however, that other scholars have pushed back on the notion that there is a linear relationship between density and positive social outcomes, or the idea that ever-higher densities will produce ever-higher positive social outcomes. For example, Forsyth (2018) argues that the relationship between density and health is more nuanced, requiring an examination of how “high planning densities can be helpful, problematic or unimportant, depending on the type of density, health issue and population” (p. 350).

Last, another strand of scholarship has examined the relationship between urban density and environmental outcomes. Premised on the notion that dense urban areas are more likely to encourage public transit or other environmental modes of transportation, scholars have hypothesized that dense areas will have lower carbon footprints. Researchers have found evidence that this is the case, arguing that areas that concentrate their populations in smaller areas are less likely to encroach on natural habitats, are more likely to have the population density required to sustain mass transit, and are more likely to be home to apartments, which have higher energy savings than detached single-family dwellings. Taken together, the previous literature on urban density suggests that urban form is strongly correlated with an array of positive benefits, from increased economic productivity to improved health and environmental outcomes. This body of literature, while summarized in brief here, supports our pursuit of identifying interventions to encourage a denser built environment.

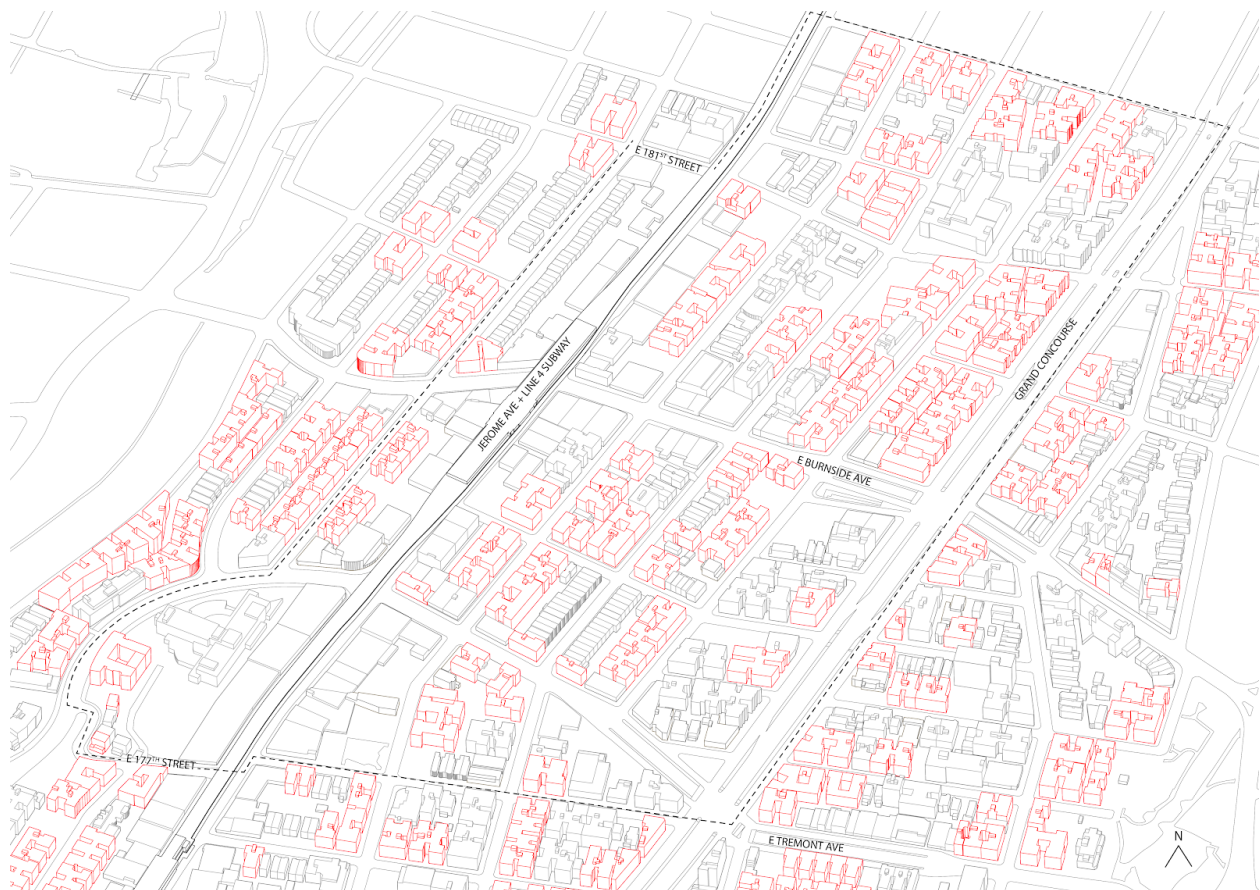
IV. CASE STUDY: DENSITY AS A NEIGHBORHOOD ASSET

The Grand Concourse, “once called the “Park Avenue of the middle class,”” bisects the Bronx from north to south. Alongside it, residential Art Deco buildings are interspersed with commercial storefronts in a variegated streetscape that eludes a single characterization.

A common feature along the Concourse is the presence of New Law Tenements, which we used to determine the boundaries for a study area, which combines sections from Morris Heights and Mount Hope. These

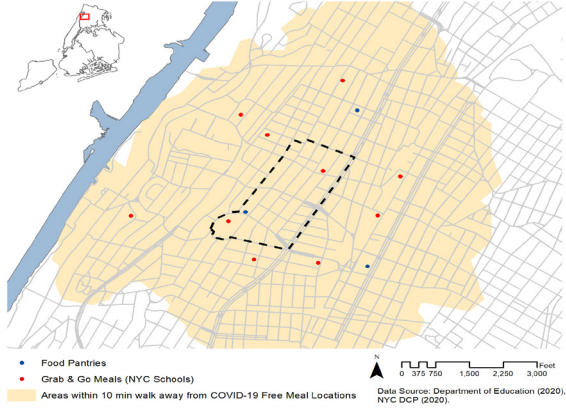
portions of two neighborhoods – with the Grand Concourse to the east and Davidson avenue to the west, between 177th and 181st streets – include two public schools, several playgrounds, supermarkets and convenience stores, daycares, and numerous religious facilities.

This area of the Bronx is not unaccessible, nor is it unserved by public infrastructure for health, transportation, or education. On the contrary, it is located in close proximity to a variety of facilities that allow connection

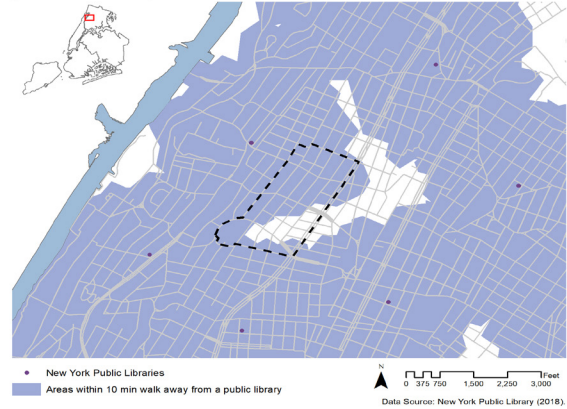


to the rest of the city. We created a series of maps to illustrate these connections and public service networks present in the area, to illustrate the existing capacity to effectively house more people in adequate conditions.

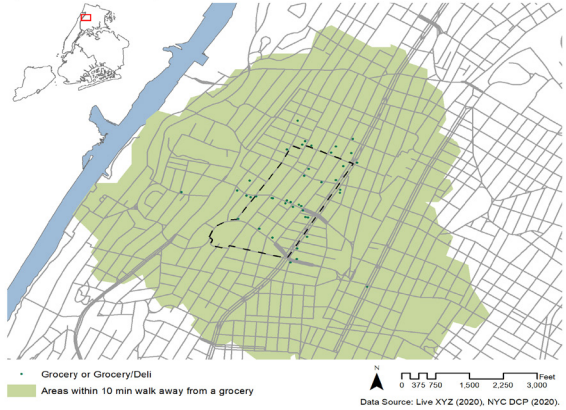
Areas Accessible to COVID-19 Free Meal Locations (10 min walk, 0.5 mi buffer)



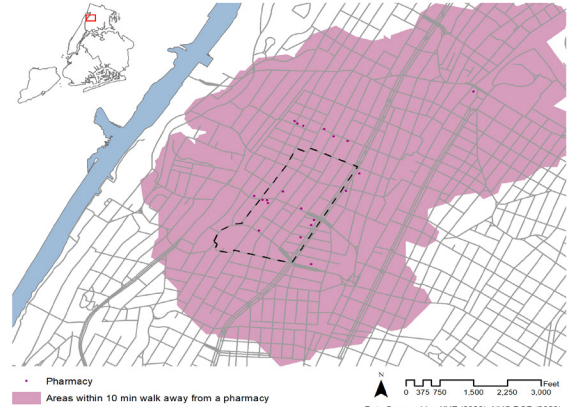
Areas Accessible to Public Libraries (10 min walk, 0.5 mi buffer)



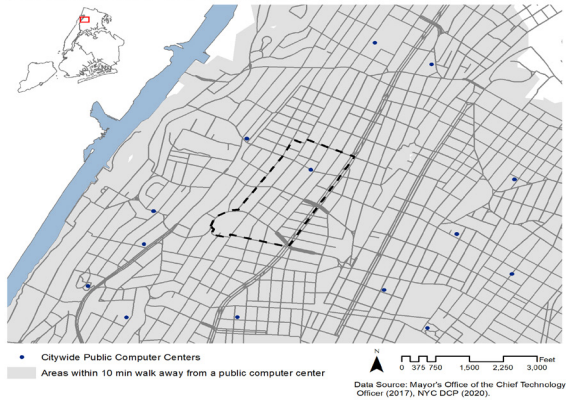
Areas Accessible to Groceries (10 min walk, 0.5mi buffer)



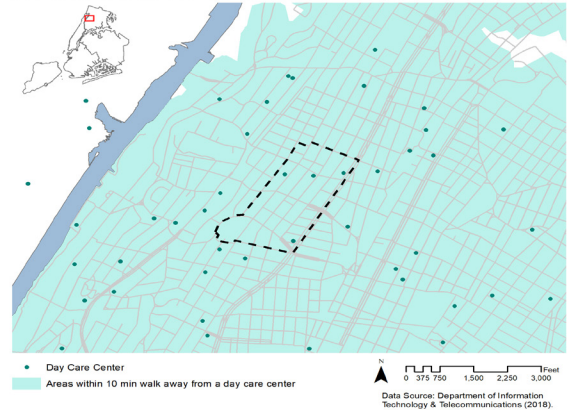
Areas Accessible to Pharmacies (10 min walk, 0.5mi buffer)



Areas Accessible to Citywide Public Computers (10 min walk, 0.5 mi buffer)



Areas Accessible to Day Care Centers (10 min walk, 0.5 mi buffer)



There is a network of housing and infrastructure in this neighborhood. Our working hypothesis is that we can enhance this network with new facilities (both public and private) that, in turn, can sustain a denser housing environment and enhance quality of life. Housing, in this sense, is not going to be enough to create denser neighborhoods that are sustainable, affordable, and livable. We also need public amenities such as streetscape improvements and access to public services such as transportation and healthy food, as well as open spaces and healthcare facilities to tend to the reconstruction of social interaction in a post-pandemic setting.

This heterogeneous streetscape adds complexity to the conceptualization of density. While New Law Tenements represent our main focus, they are only one of the housing categories that we can use to define, convey, and reimagine density and shared spaces at a multiblock level. Specifically, during our site visit we encountered several one- and two-story houses, places of less density that can interact with the need for either more dense housing or with social infrastructure designed for an increased number of residents. Similar interventions can be planned in commercial buildings, especially along Jerome Avenue - a corridor that is defined by the presence of an elevated subway line.



New Law Tenement buildings represent the majority of the housing stock in this neighborhood. These low-rise, dense housing structures are, however, not the only typologies present in the area.



Interspersed with larger and denser forms of housing, single-family houses - both for residences and commercial storefronts - also represent a significant portion of the housing stock in the neighborhood.



Along Jerome Avenue, one of the main commercial arteries in the area, the elevated subway lines dominate the streetscape. Around it, one-story commercial properties are abundant.

4.1 ACCESSIBILITY AND NEIGHBORHOOD PLANS IN BARCELONA

We are drawing inspiration from a prototype of a self-sufficient neighborhood in Barcelona, that placed facilities at a neighborhood scale to strengthen local networks and decentralize public service provision. As seen in figure 9, “most of the facilities are at neighborhood level, generally located in one center that serves all the neighborhood” - which, in turn, is defined as a spatial unit that encompasses a 1km x 1km area.

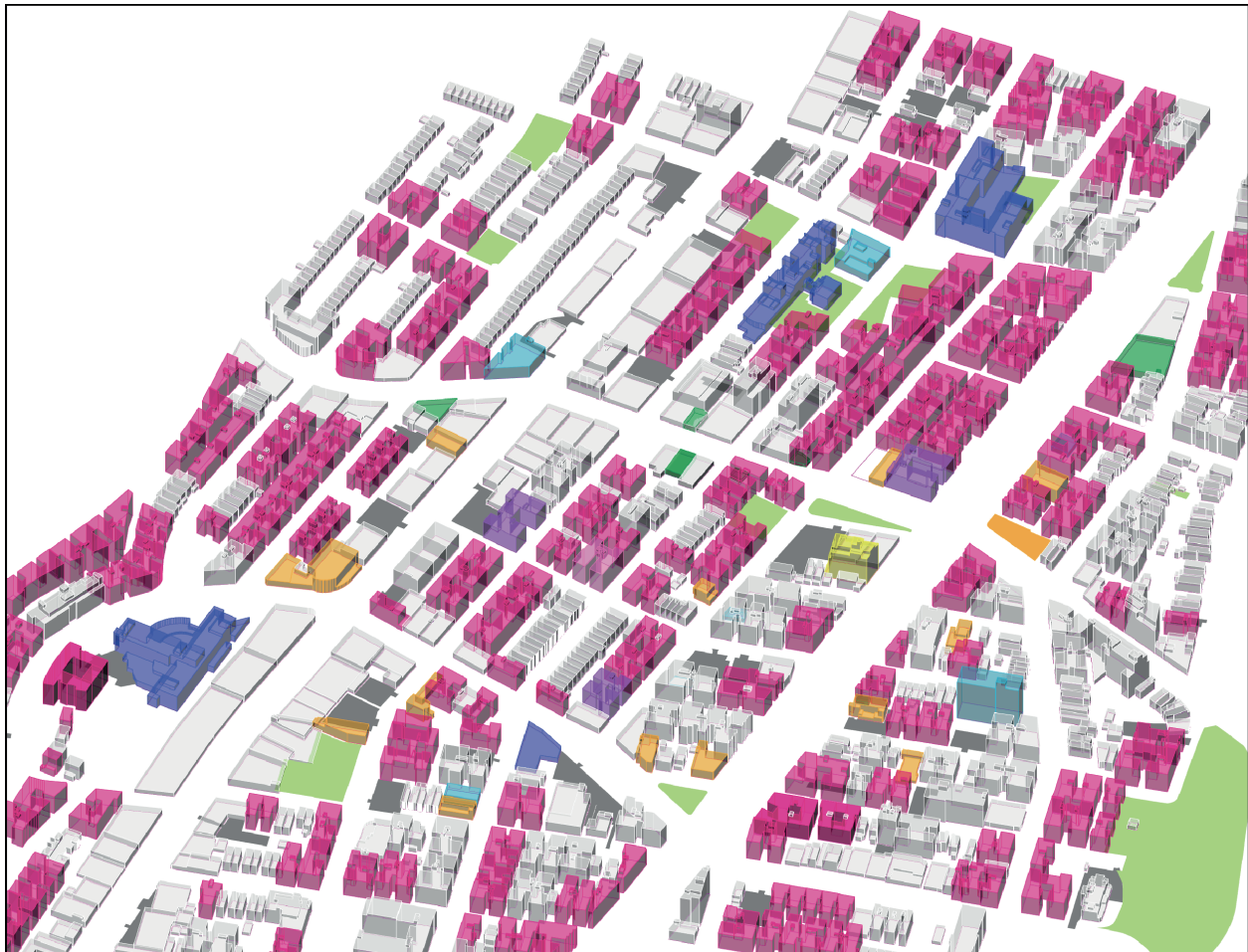
These facilities serve purposes of education, healthcare, recreation, commerce, social interaction, public administration, security, and religious practice. Their distribution in the neighborhood, along with green areas, is determined by four criteria: category of use, type of users, frequency of use, and complementary functions. This allows both for mixed-use facilities that serve multiple purposes, as well as for flexible programming of public spaces to serve multiple audiences in different times.



V. SPECULATIVE PROPOSAL

We are framing density as a tool to create proximity in New York City. In the urban geography of the city, density is a critical enabler of access to opportunities of collective growth and rebuilding. Analogously, the spatial quality of communities' needs and struggles goes hand in hand with the reimagination of the built environment that needs to be adjusted to new forms of living.

Dense low-rise buildings, such as New Law Tenements (depicted in pink in the model below), represent a node for intervention in residential areas. But this opportunity extends beyond the habitational units, since the uniformity of the tenement buildings and the shared needs of its dwellers can be addressed by recognizing that **collective solutions can have a larger and more lasting impact than individual ones.**



- NLT
- NLT | identified NGO
- NLT | identified church
- Community Org | DayCare | Senior Center
- School
- Church | Religious Org
- Health Care Facility | Community Health Center
- Grocery Store | Super Mkt
- Parking
- Park | Open Space | Playground

For that reason, we want to understand where are the main sources of vulnerability in low-income neighborhoods. There are economic needs, tied to precarious or informal sources of employment, and to a restricted access to educational systems. But there is, at the same time, a varying degree of connection to economic hubs in other areas of the city (determined mainly by the proximity to mass transit lines.) We also need to recognize other types of social infrastructure - libraries, senior centers, community organizations - that function as anchors in mutual aid networks. They provide support during hard times, allow for social interaction, and can even become places of refuge during catastrophes.

However, interventions of this scale in low-income communities can quickly be read by residents as a looming threat of gentrification. In the Bronx neighborhood we profiled, that seems to be the perception about a rezoning that aimed at the economic revitalization of Jerome Avenue, one of the main commercial corridors of the area. Whether this risk is unavoidable or not eludes the scope of our research; but we are taking into account the deleterious effects that large-scale interventions could have on the social fabric.

VI. NEXT STEPS

ON SCALE: there is a theoretical discussion about how to define scale to highlight the concept of network that we're pushing for. Leah Meisterlin's quote on that: "the "scale of the city" includes more than describing large systems within a map of the city but also describing the relationships between these systems and their smaller, constituent parts—each understood at particular locations and active at specific moments. By this, zooming into a neighborhood would necessarily require describing more than the details afforded by higher-resolution inspection, more than illustrating the ways that city-scaled systems touch down in particular places. It also involves specifying the relationships between these systems and neighborhood-level resources, processes, and their localized organization. Scale as distinct from size—as relationships between elements of different sizes—is the site of urbanists' and architects' domain expertise, whether in the design and execution of participatory engagement processes or in the strategic development and consideration of on-the-ground experiences, spatialities, hierarchies, trade-offs, and priorities."

ON THE INDEX: We are creating a set of indicators to classify existing and proposed infrastructure, and to gauge its effect to support more housing units. We defined three main groups of indicators to determine social vulnerability and identify required interventions: socioeconomic, sociospatial, and environmental. While the idea of applying the index on a citywide scale is enticing, we need to be wary of creating a just ranking that will not lead to a meaningful understanding of the neighborhoods, nor to feasible strategies for intervention. For that

reason, we are transitioning to design a spatial analysis tool that illustrates pending needs in specific neighborhoods.

REZONING: do we talk here about the effects of the Jerome ave rezoning? Do we want to acknowledge the potential for gentrification? How do we approach that?

NETWORK: Conceptualizing the network idea: how do we represent (graphically and otherwise) the connections present in the neighborhood? We can start with a diagram. It is critical that we acknowledge that one size does not fit all. A variety of designs can be shown to illustrate the inherent heterogeneity of the built environment that we've already identified. We also need to push harder on the action side: how can we make proposals feasible.

SUSTAINABILITY: There is a clear link between the pandemic and climate change vulnerability. I wrote this also for the lab but we can reuse/modify it at will:

Advocates for battling the climate emergency have been fighting an uphill battle to implement large-scale changes in urban environments. However, the pandemic is now acting as a catalyst in three fronts to create more sustainable cities. First, there is a strong push for increased non-motorized travel, with incentives to open more streets to pedestrians and more infrastructure for bicycles. Public transportation, in the meantime, is experiencing a drastic decrease in ridership – a process that could prove fatal to its operation and compromise its role in bringing cities together.

Decarbonization is also a goal that has risen in prominence as a consequence of the plunge in oil prices. The profound economic shock generated by the pandemic has been acknowledged by the United Nations and the World Economic Forum as an opportunity to reframe economic reconstruction in order to achieve carbon neutrality and to plan for more sustainable forms of economic growth. For cities, this can be translated into renewed efforts to provide sustainable public services, increase green space, and offer alternative ways of working and commuting.

These goals require resilient social infrastructure. Neighborhoods have acquired a particular role in building robust support networks to reduce the risk of spreading disease and to tend to those unable to care for themselves. Better communal facilities, more open spaces for safe recreation, and closer access to healthcare, grocery shops and food pantries are in higher demand. The scale of urban interventions seems to be shifting and focusing around more localized frameworks.

For architects and planners, this shift begets a question on the relevance of housing spaces when a substantial portion of labor is now working from home. In what conditions is work conducted? What are their spatial requirements? Its effects on public health? How to reconcile a push for open and green spaces with policies based upon confinement? These questions need to be addressed in depth if we want to produce meaningful content to illuminate urban reconstructions.

ON THE AREA PLAN: Starting from the first mockup (shown below) determine avenues for intervention and indicators for accessibility in different neighborhoods. Site selection will be redone based on the results of the spatial analysis to identify pending needs. This can become a joint effort with the Center for Spatial Research and the Center for Resilient Cities.



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