UP Studio | Spring 2020 | Columbia GSAPP

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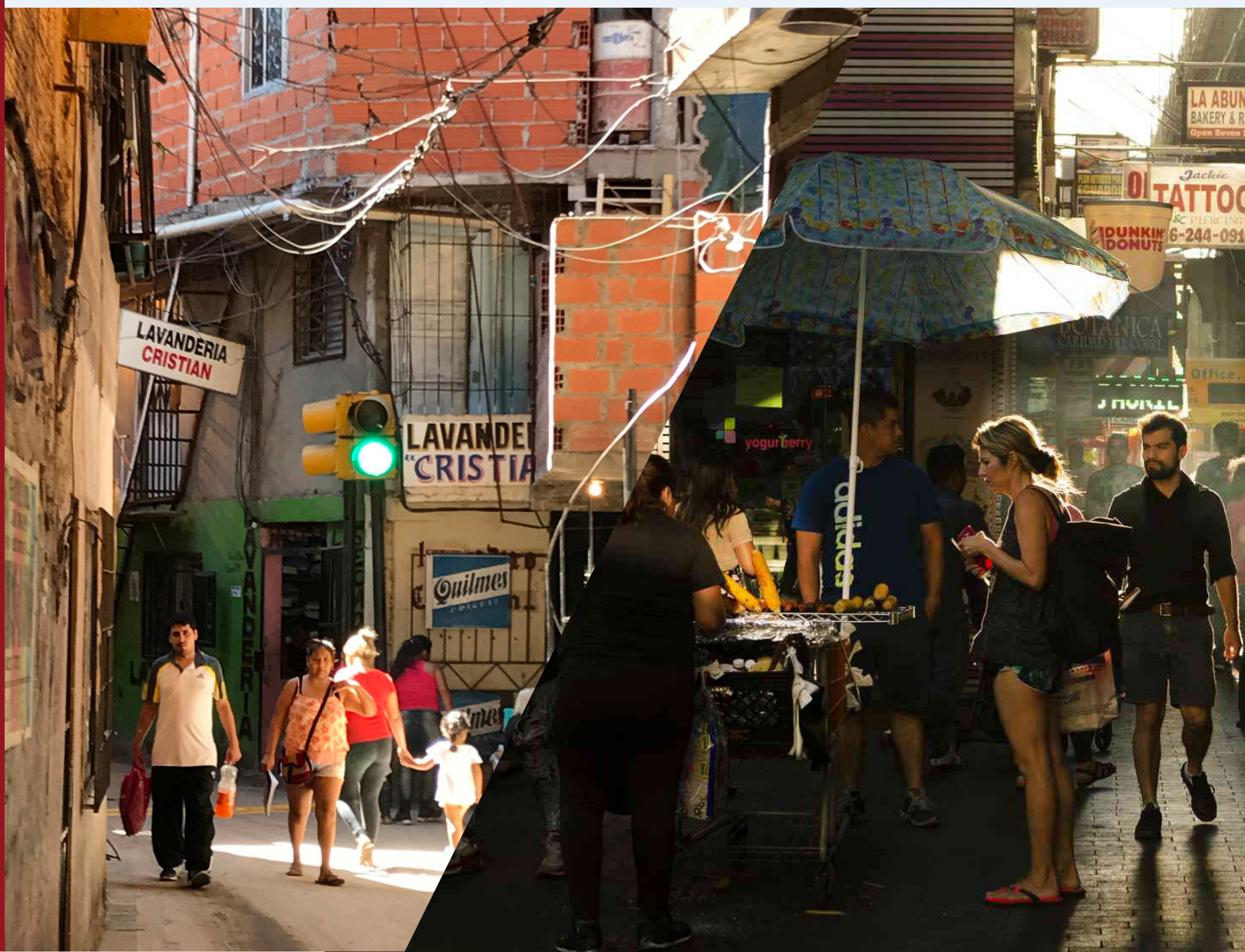
Reimagining **Informality** through Public Space in **Buenos Aires** & Informal Vending in **New York City**



Reimagining **Informality** through Public Space in **Buenos Aires** & Informal Vending in **New York City**

UP Studio. Spring 2020. Columbia GSAPP.

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Acknowledgments

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Executive Summary

We spent the first half of the semester researching Barrio 31, an informal settlement in Buenos Aires. Just a few days before our trip, the coronavirus epidemic became a global concern that compromised our on-the-ground research in Argentina. We then decided to expand our scope to include street vending in Corona and Jackson Heights in Queens, the neighborhoods that in a matter of days became the center of the epidemic in the United States.

Barrio 31 and Corona and Jackson Heights are united, in our collective imagination, by more than the pandemic. While 5,295 miles apart, these places are the home of diverse, migrant communities that work on city streets every day to make a living. Informality is not a condition unique to the global South. It is found in virtually all contexts. Urban informality is presented as an exception to the "normal" or "rational" forms of urbanization. For us, it is a consequence of deep inequalities that are embedded in the built environment. As of 2018, 25% of the world's population lives in informal settlements. Since 2014, the number of people living in informal settlements grew to over 1 billion and will continue to grow in light of rapid urbanization.

As we've seen through the pandemic, quarantines and the closures of open space exacerbates the poverty in informal settlements. We aimed to create tools that mitigate the effects of informality in these communities, and assist them in reclaiming their public spaces. We also wanted to explore how we can influence public space from a digital perspective. As quarantines and social distancing become new norms for cities, urban planning needs to produce new forms of influencing the built environment. Our studio was focused on producing these tools.

looking into Barrio 31

Reimagining Informality in Barrio 31's Public Spaces

a take on creating public spaces promote connectivity and social interaction in Barrio 31

Introduction

Barrio 31 (B31). A neighborhood in Buenos Aires, Argentina that is as distinctive as the city that calls it home. Yet even though it is located in the city of Buenos Aires, the two are disconnected in many ways. While the barrio is lively and vibrant, most of Buenos Aires does not perceive it as such; it is seen as a villa or slum because it is socially, physically, and politically separated from the rest of Buenos Aires and fragmented internally, due to the many cooperatives fighting for their individual manzana's (block) interests. Inequality exists everywhere, and is showcased just as much in the city's wide autocratic Haussmann-inspired avenues and townhouses, as it is in the narrow back-alleys and precarious stacked homes of the Barrio. This top-down system of planning has led the citizens of the Barrio to plan for themselves, often informally.

Fig 1. daily life in the Barrio

Photo Credit/ ***LA Network, Colombia***

Executive Summary

The disconnection that has led to the informal planning of Barrio 31 resulted from a lack of social, physical and political infrastructure. Socially, there is a negative perception from outsiders, hurt by the Barrio's generational gap, that creates social tensions within the neighborhood. Physically, the Barrio is separated from the City by railroad tracks, divided by a highway, and only has a few access points. Politically, it struggles with underrepresentation at a citywide level.

One of the most prevalent issues relating to all of these realms of disconnection is the difference in green space. While the city of Buenos Aires has many green spaces, Barrio 31 does not. Urban green spaces offer an essential refuge from the surrounding density for communities to obtain a healthy quality of life, a sense of community, and urban resilience. The presence of green space is also related to better air quality, regulation of temperature, and reduction of noise. This leads to improved physical and mental health, the latter of which has historically been overlooked in the global south—especially within the context of informality.

Now, in the digital age and with the COVID-19 pandemic, addressing these issues in the digital realm is especially applicable. For the first time in human history, social interactions depend primarily on technology and as such, our approach to addressing the lack of green space and resultant social interaction in Barrio 31 manifests itself through a mobile application, called VerdeB31. In an attempt to alleviate and reduce these disconnections, utilizing both the existing Wi-Fi infrastructure, technology programs, and currently active public spaces brings us this much closer to

Fig 2. Barrio 31 with Illia highway flyover

Photo credit / ***muun.org***

bringing the neighborhood from villa to barrio, a pervasive issue exists throughout the Global South. VerdeB31 addresses that issue.

In creating and designating VerdeB31 as an essential neighborhood tool, we had to examine Barrio 31 through a variety of methodologies. First, we compiled background research on the political history of the neighborhood, Buenos Aires, and Argentina in order to answer the following questions: how do present political entities and actors within B31 serve as community organizers; what are the citizens of the neighborhood doing to make their own initiatives; and what are the key differences between political and community and/or family based organizations. Next, we analyzed prior institutional research of Barrio 31, such as *The Transformation of Villa 31 Local Politics* and *Urban Development Policy in Buenos Aires' Most Emblematic Slum* by Yale University, and *Barrio 31 Carlos Mugica: posibilidades y límites del proyecto urbano en contextos de pobreza* by the Institute for Human Space at the University of Buenos Aires. This collection of scholarship helped us understand what exists in the Barrio and what needs to be done. Last, we examined existing initiatives in place to enhance the neighborhood's quality of life, such as educational opportunities for Children through the SOS Children's Villages International, SACS (Send a Child to School), and Casa La Cava. These, as well as our own in-depth research of the existing conditions of BA31 led us to understand the clear truth that the neighborhood needs better connection.

Our vision for VerdeB31 harnesses a self-planning approach. In championing this ideology, we hope that the app will foster equitable social development, promote inclusive and equitable economic growth, generate new opportunities for all current and future generations, reduce inequality, raise basic standards of living, and encourage sustainable management of natural resources and ecosystems conservation. In our case, the ecosystem refers not to the natural environment but the informal character of Barrio 31 that allows its residents to live in this place. This gives the citizens of the Barrio the freedom to build the app, making a better VerdeB31, and therefore, a better Barrio—for everyone.

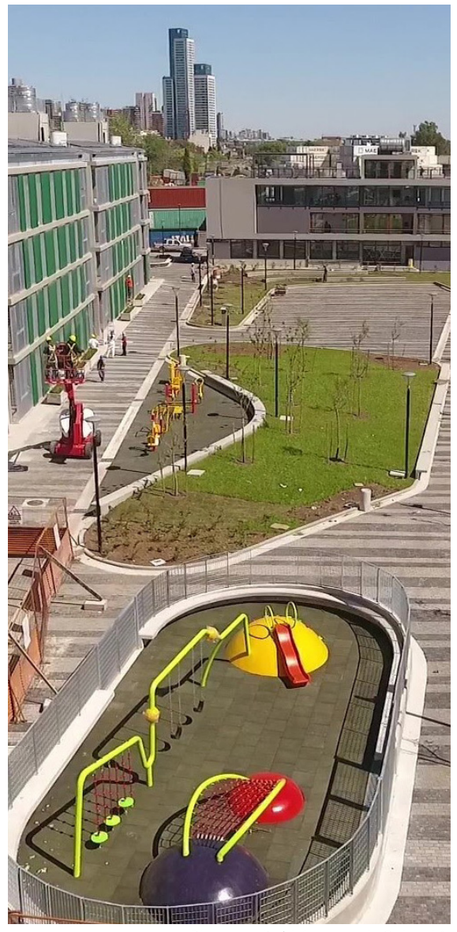


Photo credit / ***LA network, Columbia***

Fig 3. existing city initiatives in the Barrio

History and Background

A Brief History of Buenos Aires

Buenos Aires was founded in 1536 by the Spanish explorer Pedro de Mendoza on the banks of the Río de La Plata[1]. Right from the start, its location on the continent's eastern coast to the development of a separate attitude from the rest of the Spanish colony, which was administered all the way from the Pacific Coast in Lima. Buenos Aires grew independently and rapidly until it became a thriving metropolis, and eventually gained regional control under the Spanish crown. Yet after centuries of boiling independent attitudes, continued misrepresentation by and neglect from the Spanish, and invasion attempts from the British, the city and region decided to split off in 1816, the beginning of the city's revolutionary political attitude.

In the 19th and 20th centuries, wealth disparity became rampant in the city, and its lower income residents, particularly non-whites, were forced into slums, or unoccupied areas in the periphery and industrial areas near laborer opportunities. This was also where the earliest 'villas' began to take shape, usually made of sheets of corrugated metal. Many immigrants and newcomers to the city's only feasible option for housing was in the increasing number of 'villas'. What would become Barrio 31 was one of them[2].

Naturally, political movements against the wealthy in power began to grow, and from the 1940s to the 70s there were many military coups. Those living in the area near the docklands where Barrio 31 is is currently located, were forced off the land. In 1982, the regime itself folded, and by 1983, Argentina once again became a Democracy.[3] With that came a new influx of immigrants to the area near the docklands. The years of, "political instability, dependent economic growth, inequality, and migration driven by uneven economic and social development across the nation and the region," led to the creation of self-governing informal settlements, or "villas" which thrived on being as dissociated with the tumultuous and turbulent federal government as possible[4]. This is how Barrio 31 grew into its own, and became the neighborhood it is today.

Photo credit / ***explorers.com***

Fig 4. Pedro De Menzoda

Fig 5. early photo of the Port of Buenos Alres

Photo Credit/ ***Archivo General de la Nación Argentina***

Fig 6. families sitting at the Port of Buenos Aires upon arrival

Photo Credit/ ***Archivo General de la Nación Argentina***

Photo Credit/ ***Benjamin Bryce***

Fig 7. arrival of immigrants at the Port of Buenos Aires, 1930s

Photo Credit/ ***Felipe Vera***

Fig 8. examples of the informal home types found throughout Barrio 31

A Brief History of Barrio 31

Barrio 31's extensive history of marginalization derives from the complex relationship between the government and the community. Throughout the 20th century, residents were not recognized as full citizens and were deemed as "illegal" occupants not eligible for urban improvement efforts witnessed by the greater city of Buenos Aires.

In the 1930s, immigrants from differing parts of South America migrated to the city to work at the Port of Buenos Aires, many of which collectively settled in a nearby space that would eventually become "Villa 31."[5] From the 1940s to 1950s, workers from the rising railroad industry joined the existing informal community and congregated based on employment. In the 1970s, Argentina's military dictatorship completely expelled residents and demolished the area. However, the country's redemocratization in 1983 reinstated hope for "Villa 31," as residents were able to return to their settlement and subsequently reconstruct their homes out of concrete and brick.[6]

From the 1980s to 2000s, residents collectively demanded basic survival necessities from the city government. Specifically, they wanted to be included with the city's larger infrastructural improvements and increased access to basic services such as electricity and running water. However, similar to how Janice Perlman describes favelas in Brazil as "unwanted from inception", the public perception of villas in Argentina were defined as "territories of exclusions".[7] The nature of informal settlements led to modernized cities such as Buenos Aires ignoring the needs of one of South America's most vulnerable populations.

Footnotes

[1] Joseph S. Tulchin and David J. Keeling. “History: Buenos Aires, National Capital of Argentina.” Encyclopedia Britannica. (Encyclopedia Britannica, Inc., 2019).

[2] Mathew Toland, The Transformation of Villa 31 Local Politics and Urban Development Policy in Buenos Aires’ Most Emblematic Slum. (Yale University, 2018), 27.

[3] A SHORT HISTORY OF BUENOS AIRES. History of the City and Legends from the Area, (Peru - Information Technologies Department, 2002).

[4] Toland, 32.

[5] Toland, 2.

[6] Toland, 3.

[7] Janice Perlman. Deep Roots in Shallow Soil in Favela: Four Decades of Living on the Edge in Rio de Janeiro. (Oxford: Oxford University Press, 2010). 26.

Existing Conditions

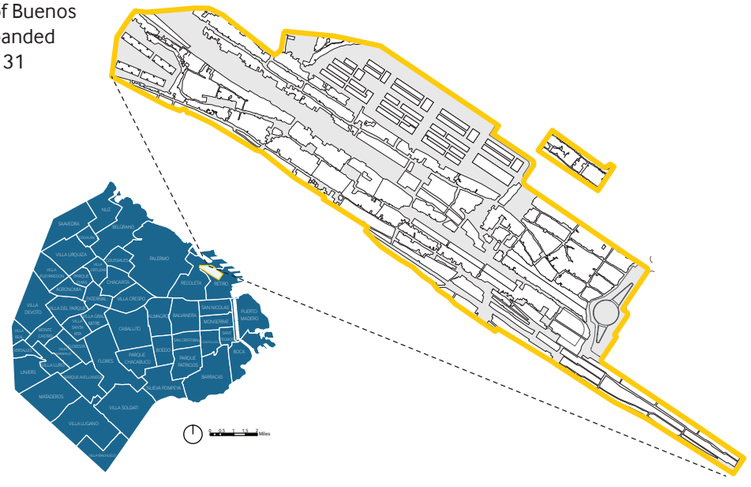
Introduction: External Conditions

This section will compare physical, social, economic differences between Barrio 31 and the city of Buenos Aires. Since Argentina's return to democracy, over 40,000 people have called the 32 hectares of Barrio 31 their home.[1] As seen in the map below, the neighborhood remains lodged between some of the most affluent neighborhoods of the city (Retiro and Recoleta) which is also the industrial center, and the ocean. The residents of the neighborhood are separated from the formal city by highways and railroads.

Fig 9. map of Buenos Aires, Argentina highlighted in map of South America

Data Source/ ***Government of the City of Buenos Aires***

Fig 10. map of Buenos Aires with expanded view of Barrio 31



Data Source/ ***Government of the City of Buenos Aires***

External Conditions

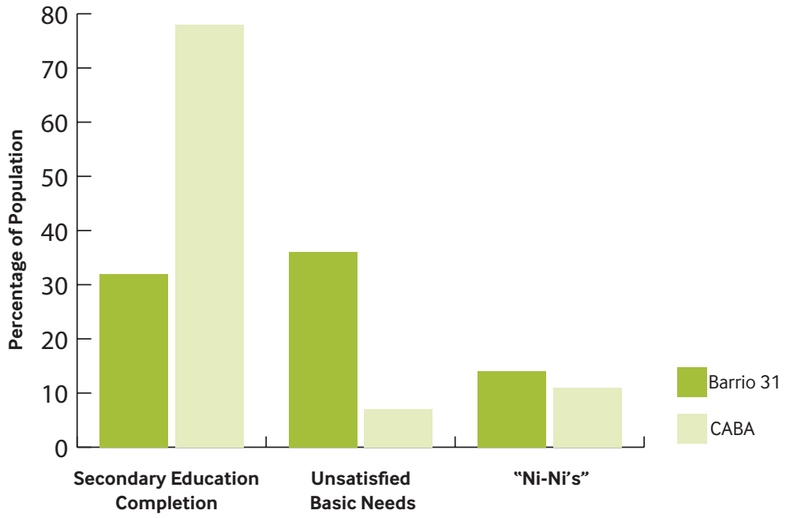
While the neighborhood's physical location has made the integration efforts with the formal city difficult, prevalent socioeconomic inequities have further exacerbated the neighborhood's reputation and resulted in lack of connectivity. As indicated in the "Social Indicators" table above, rates of educational attainment, unsatisfied basic needs (such as access to drinking water), and living standards drastically fall behind those of the rest of the city.[2]

This trend holds true for the employment sector, as seen in the "Job Indicators" (Figure 14). Notably, the majority of Barrio 31 residents work in the informal economy while less than 30% of the city's residents work in the informal sector. Many of the Barrio's residents are self-employed, running businesses from their homes and/or participating as street vendors in the neighborhood's informal market, La Feria.[3]

Additionally, the neighborhood's habitat indicators are shockingly low. As seen above, the neighborhood's "Minimum Habitat Unit" is $7m^2$ in contrast to the city's $16m^2$. Furthermore, the neighborhood entails only $0.3m^2$ of "Public Space Per Capita" in comparison to the city's $6m^2$. These shocking disparities indicate the need for more public space, specifically green space throughout the neighborhood[4].

Fig 11. aerial view showing separation of Barrio 31 from Retiro due to highway and railroads

Photo Credit/ ***Dani Cocco Beltrame***

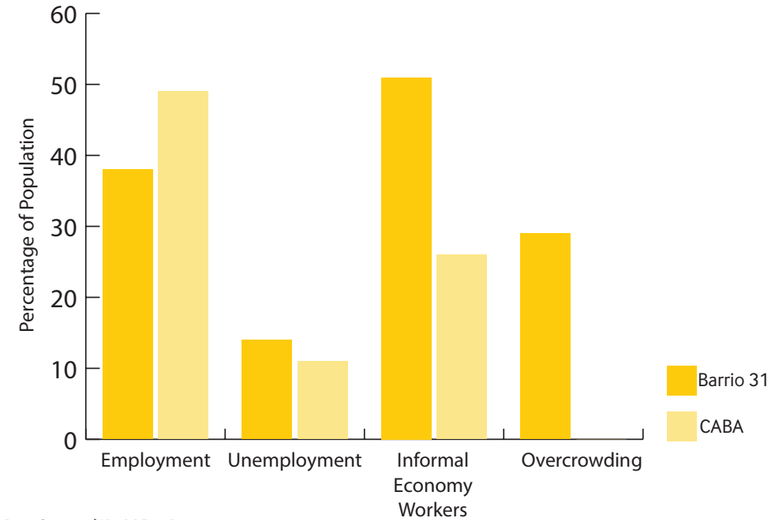


*Data Source/**World Bank***

Fig 12. social indicators of socioeconomic inequality between Barrio 31 and the rest of Buenos Aires

*Photo Credit/**Lorena Bermejo***

Fig 13. example of inequality present following City's formalization efforts; seen here residents provide fresh water using cisterns, July 2019



*Data Source/**World Bank***

Fig 14. job indicators of socioeconomic inequality between Barrio 31 and the rest of Buenos Aires

*Photo Credit/**Ciudad de Buenos Aires***

Fig 15. La Feria, Barrio 31's largest informal market for street vendors

Introduction: Internal Conditions

Existing conditions within Barrio 31 hinder progress toward alleviating external inequities previously discussed. This section will examine how ongoing social tensions and subsequent political gridlock have prevented the neighborhood from connecting with the rest of the city, especially in regard to outsider perception and policy making decisions.

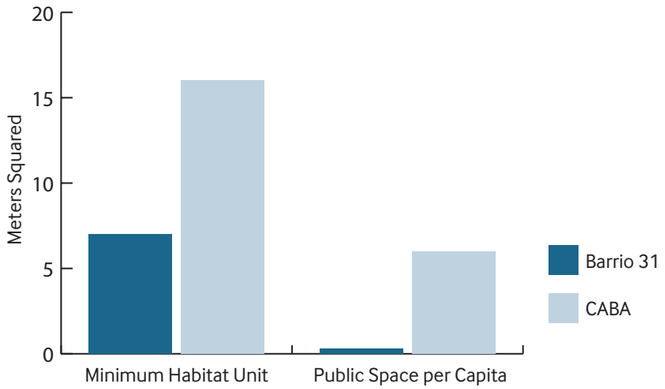


Fig 16. graph of Barrio 31 habitat indicators compared to the rest of Buenos Aires; indicators include access minimum habitat unit and public space per capita

*Data Source/**World Bank***

Fig 17. example of typical cramped housing of Barrio 31

*Photo Credits/**Eitan Abramovich***

Internal Conditions

Currently, the inner-workings of Barrio 31 are plagued with social fragmentation. Two elements that contribute to this divided nature is the population's generation gap and cultural differences. From 2010 to 2015, the city of Buenos Aires followed global urbanization trends, as new populations fled to city centers. Consequently, the neighborhood experienced mass migration, as its resident count increased exponentially, nearly doubling from 27,013 to 43,190.[5]

The influx of new residents to Barrio 31 formed a dichotomy between two age groups within the neighborhood. As indicated above, 54.2% of residents are 24 years-old or younger while the remaining 42.7% of residents are between 25-59 years-old. This trend, however, does not hold true for the greater City of Buenos Aires. Rather, the city's population makeup is evenly distributed by age group as follows: 34.1% of residents are 24 years-old or younger; 45.5% of residents are between 25-59 years old; and 20.4% of residents are 60 years-old or older[6].

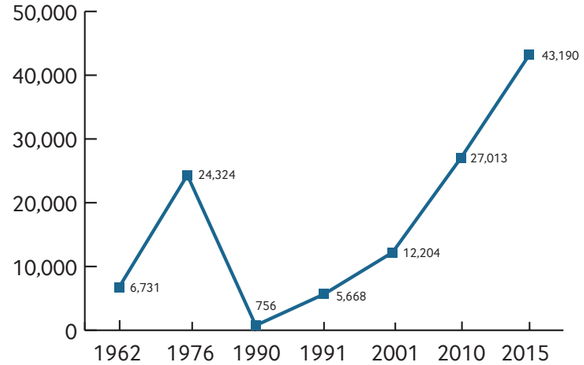


Fig 18. graph of Barrio 31 population growth from 1962-2015

*Data Source/**World Bank***

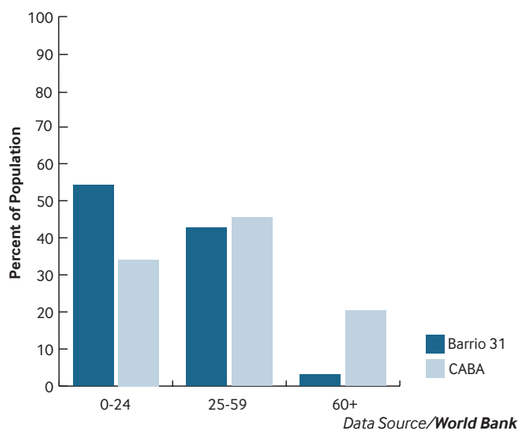
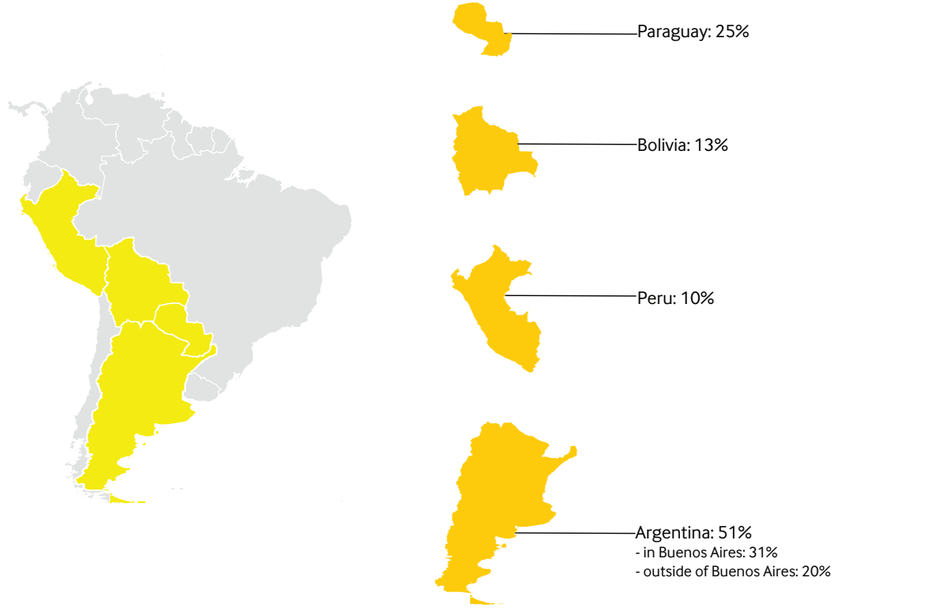


Fig 19. population age distribution based on 3 groups

*Data Source/**World Bank***

In addition to the bifurcated age composition, increased migration into the neighborhood intensified differences in cultural origins. Of the 51% who are foreigners, only 29% were born in the City of Buenos Aires. Of the 51% foreigners, approximately half are from Paraguay, one third are from Bolivia, and the rest from Peru. This diverse immigration background contrasts starkly the demographics of the rest of the city 61% of residents were born in Buenos Aires while only 11% were born outside of Argentina.[7]

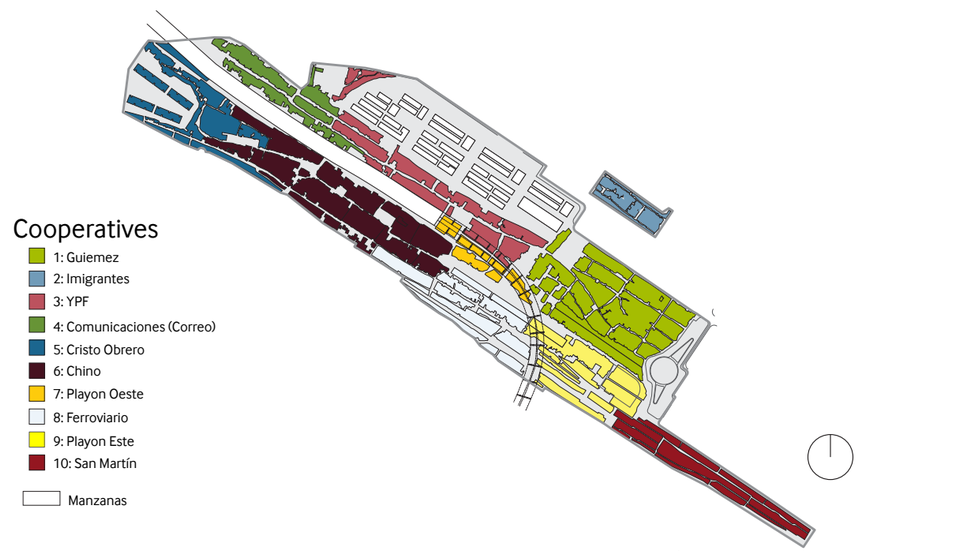
While these statistics may artificially convey healthy population growth and increased diversity, in reality they expose the lack of neighborhood cohesion and prevalent social tensions. During the population spurt, immigrants moved into neighborhoods within the Barrio, congregating in their own enclaves of similar demographic composition. These enclaves are political entities called "manzanas" and are the root of many of the differences across the neighborhood's structure[8]. These circumstances deter community development and have prevented the neighborhood from progressing as a collective unit, as the failure to collaborate as a united front causes residents' concerns to be overlooked in policy making decisions.



Data Source/ ***Government of the City of Buenos Aires***

Fig 20. map of the countries of origin of the residents of Barrio 31

Fig 21. map of Barrio 31 cooperatives, with individual manzanas



Data Source/ ***Government of the City of Buenos Aires***

"I don't want my neighbor to have a window in the same spot that I do because he is Paraguayan, and I am Peruvian.' So, it's like, but come now, beyond that, we need to ventilate your home and we need to ventilate your neighbor's home, and we need to illuminate your house and illuminate your neighbor's house, 'ah, I don't care, he is Paraguayan, and I am Peruvian, I don't want it."

- exchange between homeowner and social worker, Adriana, trying to ensure equal access to health and safety benefits of the Programa de Mejoramiento de Vivienda[9]

Barrio 31 Interventions

Leading up to the mid-2000s, as precarious conditions worsened within the neighborhood, residents of Barrio 31 continued to pressure the government to address their inadequate living standards. In recent years, local, national, and even international entities have finally intervened in Barrio 31 to socially, economically, and physically integrate the neighborhood with the formal city. Initial intervention efforts were catalyzed by a shift in governance in both Argentina and the City of Buenos Aires. In 2015, groundbreaking national and local elections led one political party's dominance for the first time in the city's history. This center-right ideology permitted collaboration among leaders and subsequent progressive policy plans to aid Argentina's most vulnerable populations.[10] In 2016, President Mauricio Macri announced "Programa de Mejoramiento de Vivienda," which entailed new plans to promote the social and spatial integration of Barrio 31. Specifically, Programa de Majoramiento encompassed improvements to infrastructure, public spaces, and homes. In addition to formalizing economic activity and promoting social development.[11]

Since its inception, Programa de Mejoramiento de Vivienda has been considered one of the city's most comprehensive, significant development plans. City leaders aspired to achieve the following goals within Barrio 31: upgrading 9,902 housing units and constructing 1,200 new homes; constructing the civic center underneath old highways and new Ministry of Education; meeting sustainable economic development goals; constructing Center for Entrepreneurial and Labor Development and improving the street market; upgrading water and sewage access; and enhancing urban integration, mobility access and public space.[12] Many of these initiatives are still in progress and have enhanced living standards within the neighborhood.

While incremental improvements have been commendable, overall aggressive incursions by the government endanger residents as land allocation priorities often ignore the needs of untenured residents. Throughout Programa de Mejoramiento de Vivienda, resident participation was largely predetermined, and was therefore disregarded in integration policies, since expansive inclusion efforts are "costly".[13] For example, the city contracted outside construction companies to carry out infrastructure improvements leaving many residents unaware of the new, unfamiliar projects within their communities. Some initiatives even demolished recent improvements executed by local residents. Drastic, unknown changes in the built environment have catalyzed tensions within the neighborhood.[14]

Although efforts to alleviate the neighborhood's socioeconomic and infrastructural inequities have been relatively successful, the city has yet to comprehensively address habitat disparities, specifically those regarding green space. While the city has executed its desired public space enhancements, these interventions were mostly in concrete plazas embedded along the main commercial corridor. As seen above, spaces such as Plaza Manzana received light improvements including repaved concrete and new street furniture to entice social interaction[15]. Since it is evident that integration policies do not directly adhere to residents' concerns, their voices were most likely not represented in this process.

While the city's interventions have aimed to address the need for public space, they have not prioritized local green space. Green-based intervention policy within Barrio 31 has also been deficient at best. One of the city's only future plans that seeks to enhance green space entails promoting "green architecture" through a new project called Linear Park, which would convert an entire existing highway into a skywalk that is significantly higher than the rest of the neighborhood. However, it has not been determined how feasible this plan will be in the transformation. Furthermore, due to the size and nature of this project, planners have not designated Barrio residents as certain beneficiaries.

Efforts to improve green space have extended beyond local governance. Since 2017, international agencies such as the World Bank and Inter-American Development Bank have become involved in the formalizing process of Barrio 31. While these agencies have financially supported local and national governments' efforts to provide broader survival necessities, they have additionally initiated smaller improvement projects, such as enhancing public spaces, throughout the neighborhood, as is noted by the Inter-American Development Bank mission. Adhering to the latter need, agencies have poured millions of dollars into increasing the amount of green spaces within Barrio 31 that align with the city's broader aspirations. One strategy of Inter-American Development Bank's plan in the neighborhood includes "regeneration and creation of green spaces to ensure better living and health standards for the community."[16] However, many of these initiatives such as this one that commenced in 2017 have yet to come to fruition. Unfortunately, existing circumstances only further expose ongoing disconnection at a city-wide level and exemplify the dismal policy in place within the neighborhood.

Due to this, city policies should be enacted and subsequently directed at the Barrio to encourage the creation of new vegetation and green areas, and methods to enhance green space should harness localized approaches where the final products are easily attainable by Barrio 31's residents. These spaces may create new areas of opportunity to further alleviate prevalent social tensions within the neighborhood. We consider these persistent problems to be considered in our proposal. Main issues identified in this section include the following: external disparities, internal tensions, and deficient policy-making processes.

In the modern city, the public space has two main functions: circulation as the road network, and recreation as the green collective spaces, together with other functions such as commerce and celebration

Inter-American Development Bank mission statement[17]

Footnotes

[1] Toland, 2.

[2] World Bank. INTEGRACIÓN URBANA Y SOCIAL DEL BARRIO 31 EN LA CIUDAD AUTÓNOMA DE BUENOS AIRES. (Secretaria de Integración Social y Urbana Jefatura de Gabinete de Ministros. December 2016). 27.

[3] World Bank, 27.

[4] World Bank, 27.

[5] World Bank, 53.

[6] World Bank, 54.

[7] Toland, 29.

[8] Toland, 31.

[9] Toland, 81.

[10] Toland, 4.

[11] Toland, 49.

[12] Toland, 42.

[13] Toland, 106.

[14] Toland, 5.

[15] Toland, 21.

[16] Beyers, 3456.

[16] Inter-American Development Bank

Greenery in Buenos Aires

and lack thereof in Barrio 31

Introduction

When strolling through the streets of Buenos Aires today, it is difficult to overlook just how green the city actually is. The City's streets are covered in a dense canopy of mature trees, apartment balconies overflow with vegetation, and inhabitants are surrounded by an extensive network of public green spaces. Public green spaces in Buenos Aires are vital to the metropolis as they are largely symbolic of the nation's history.[1] Many public spaces allude to the nation's Spanish roots, but more importantly they are emblematic of the recovery of participatory democracy in Argentina. Following the collapse of the dictatorship in 1983, a concerted political project was undertaken to return all elements of the public realm, from the streets and sidewalks, to the libraries and museums, to "el puerto porteño"—the city and the people of Buenos Aires.[2]

Fig 22. tree canopy in the streets of one of Buenos Aires upscale neighborhoods, Belgrano

Photo Credit/ ***Christopher Szabla***

The cultural value of the urban ecosystem to the inhabitants of Buenos Aires is evident.[3] The city's inhabitants have been connected to nature through the civic green initiatives. Through programs such as its Programa de Agricultura Urbana (Urban Agriculture Program) and installations such as Estación Saludable (Healthy Stations) and Huertas Urbanas (Urban Farms), the city aims to raise awareness of sustainable urban agricultural practices. These Estación Saludables host free workshops to provide knowledge and materials to residents so they can transform a balcony, patio or terrace into an urban food production space. There are also volunteer opportunities to put this knowledge to use at the Huertas Urbanas throughout the city.[4]

Yet while the city as a whole is heavily invested in maintaining the presence of an urban ecosystem, these efforts commonly overlook Barrio 31. Due to the informal and compact nature of Barrio 31, the neighborhood is highly deficient in public space. While in Buenos Aires there is an estimated 6 meters squared of public space per person, in Barrio 31 the number is just a fraction of that, at 0.3 meters squared per person.

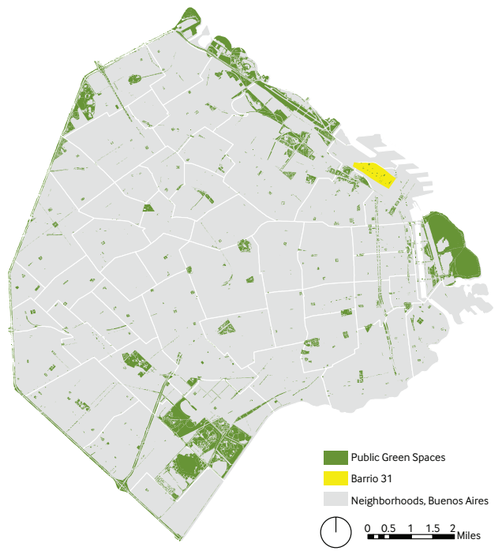
Fig 23. example of the Estaciónes Saludables found throughout Buenos Aires

Photo Credit/ ***City of Buenos Aires, Secretaría de Ambiente***

Fig 24. urban gardening volunteer project at one of the city's public huertas urbanas

Photo Credit/ ***City of Buenos Aires, Secretaría de Ambiente***

Fig 25. network of green space in Buenos Aires



Data Source/ ***Government of the City of Buenos Aires***

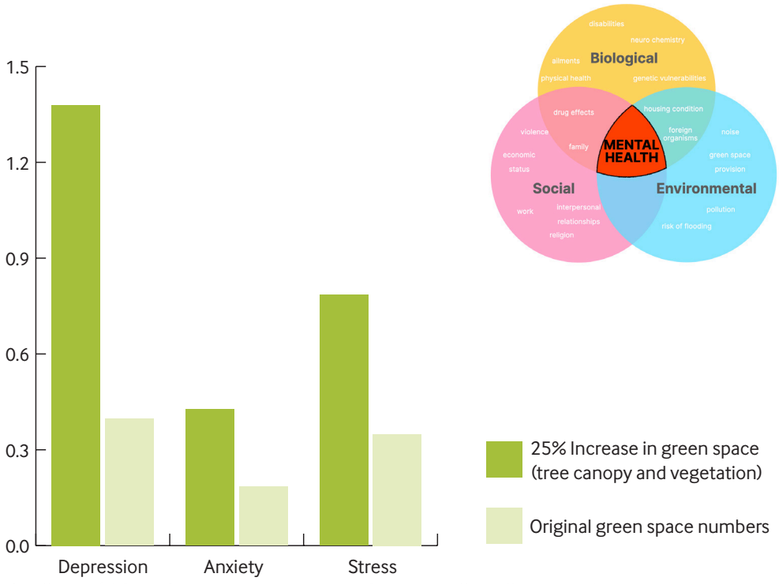
While the City's integration efforts from 2016-2019 aimed to improve open spaces, through the enhancement of 10 squares and 16 existing soccer fields and the creation of four new parks, Barrio 31's public spaces are paved in and devoid of greenery, shade and shadows, and thus shelter[5]. Because of this, public spaces in Barrio 31 are not conducive to leisure and passive recreation, particularly in the warm summer months.[6] As such, this prevents public spaces in Barrio 31 from promoting encounters between neighbors, as well as connectivity, which has contributed to the neighborhood's social fragmentation.

Equally as important is how the lack of green space adversely affects mental health. While mental health issues are just as prevalent in the global South as they are in the global North, such issues are not yet adequately addressed in the former's rapidly urbanizing cities. Studies from BMC Public Health on informal settlements in the Global South, similar to Barrio 31, illustrate that greater access to neighborhood green spaces are associated with significantly lower levels of symptomatology for depression, anxiety, and stress.[7]

Urban green spaces (UGS) have been linked directly to biomarkers of stress and attention, suggesting a biologically plausible link between green space provision and reduction of stress and mental fatigue.[8] Besides recovery from mental fatigue and stress reduction, Urban green spaces are also linked to improved neighborhood social cohesion, increased level of social support, reductions in crime, violence and aggression, reduced morbidity, and better self-reported health.[9] As explained prior, Barrio 31 is no stranger to rampant violence and crime as well as deteriorated community relationships, which are perhaps symptoms of poor mental health as a result of a lack of urban green space.

Photo credit / ***Google street view***

Fig 26. residents find shelter in public spaces in the shade created by structures



Data Source / ***Kristen Beyer et. all, Exposure to Neighborhood Green Space and Mental Health***

Fig 27. difference in symptoms of depression, anxiety and stress associated with 25% increase in neighborhood green space

Footnotes

[1] Rachel Sherman, Spatial Revitalization: “Recovering” the Public Spaces of Abasto and Puerto Madero in Buenos Aires. (University of Michigan, 2012), 17.

[2] Sherman, 17.

[3] Maria Luisa Musso, Trees of Buenos Aires Changing the Appearance of the City. (Modern Environmental Science and Engineering, Dec. 2018), 769.

[4] City of Buenos Aires, Programa de Agricultura Urbana. (Secretaría de Ambiente, 2019).

[5] Urban Sustainability Exchange, The Urbanization of Barrio 31. (2019).

[6] Elena Parnisari, Self-Public Planning in Villa 31: The public space as a social place that does not exist inside the house. (University of Porto, 2017), 121.

[7] Oliver Gruebner et al., Mental Health in the Slums of Dhaka - a Geoepidemiological Study, (BMC Public Health 12, no. 1, March 9, 2012), 177.

[8] Kirsten M. Beyer et al., Exposure to Neighborhood Green Space and Mental Health: Evidence from the Survey of the Health of Wisconsin. (International Journal of Environmental Research and Public Health 11, no. 3, March 21, 2014), 3454.

[9] Beyer, 3454.

Barrio 31 Green Space Analysis

Research Context and Problem Identification

Taking these existing issues into consideration, we employed an in-depth analysis of both the street and aerial views of Barrio 31 to identify areas deficient of greenery. In doing so we identified three unique characteristics and programs regarding the neighborhood's greenery.

The foremost issue is that in Barrio 31 there is a serious scarcity of green space. Although the government has offered to build many new public spaces in the neighborhood, only 9% of the newly built 6-acre public spaces are actually "green." This scarcity of green space might bring about a visual sense of repression, which could lead to an increment of psychological pressure and have negative effects on Barrio 31 residents' quality of living.

Second, Barrio 31 residents are actively creating household green spaces for themselves. Walking through the Barrio, one hardly loses sight of the pots of greenery along the alleyways. In a crowded living environment, most residents have chosen to grown their plants on balconies, attached to shelves, or between the window and the window grates. Only 71 of the 773 units of growers choose to cultivate plants in courtyards.

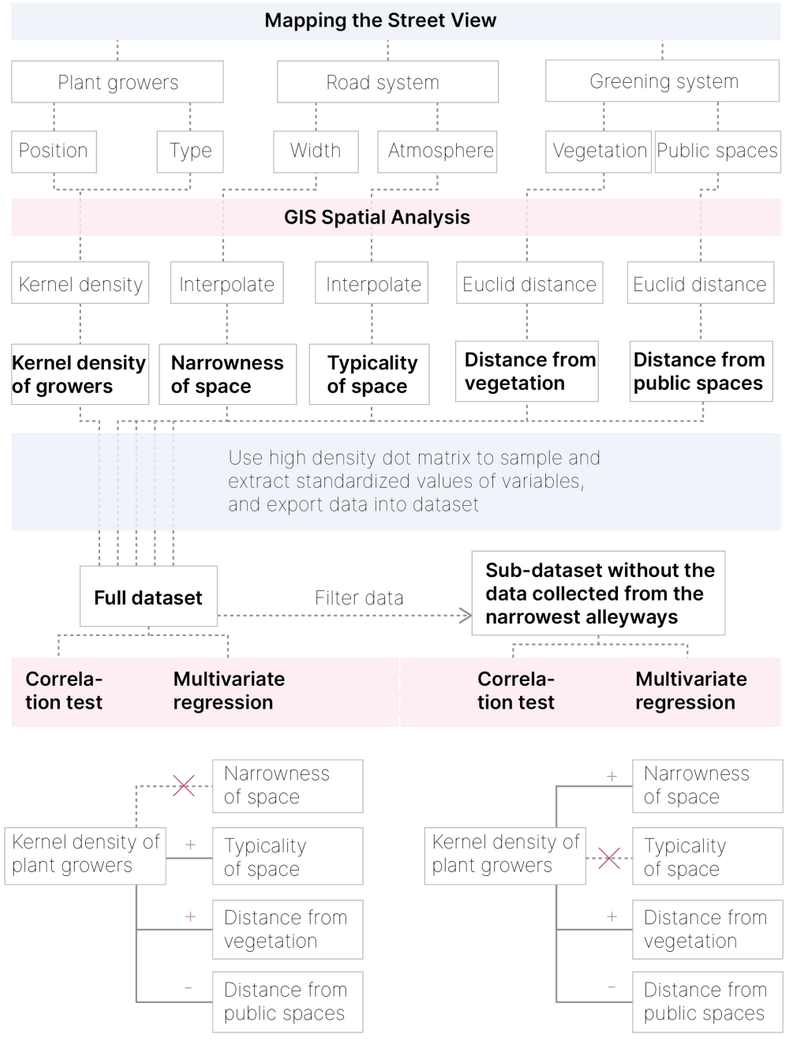
Lastly, the spatial distribution of current plant growers relates to the social and physical attributes of Barrio 31 alleyways, and also to the current positions of vegetation and public spaces.

Research Hypothesis

Nevertheless, the residents' autonomous planting in household units can not sufficiently eradicate the problems indicated above. Potential plant growers require an increasing amount of green space as well as chances to cultivate green spaces.

Research Methods

To prove this potential but prevalent desire for planting in Barrio 31, we went through the street view of the Barrio and mapped every visible plant-growing unit and categorized the four types of places they put garden pots. There are 773 units of plant-growers in total, as is shown in Figure 28 and mapped in Figure 29, among which 420 grow plants on balcony, 92 in courtyards, 71 between windows and window grates, and 186 grow on attached shelves.



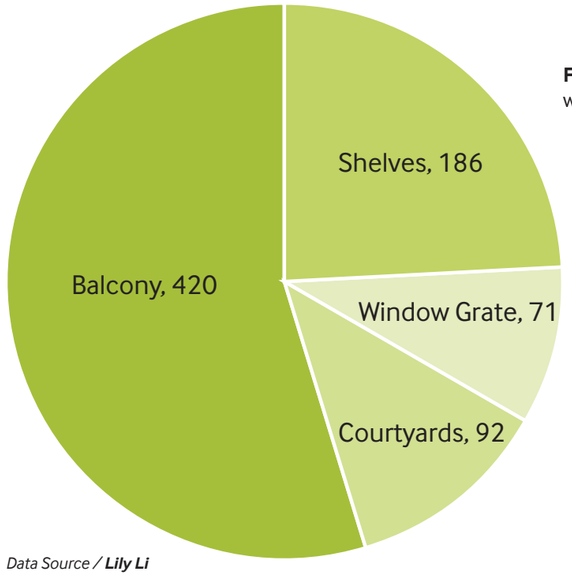


Fig 28. location on homes where residents grow plants

*Data Source / **Lily Li***

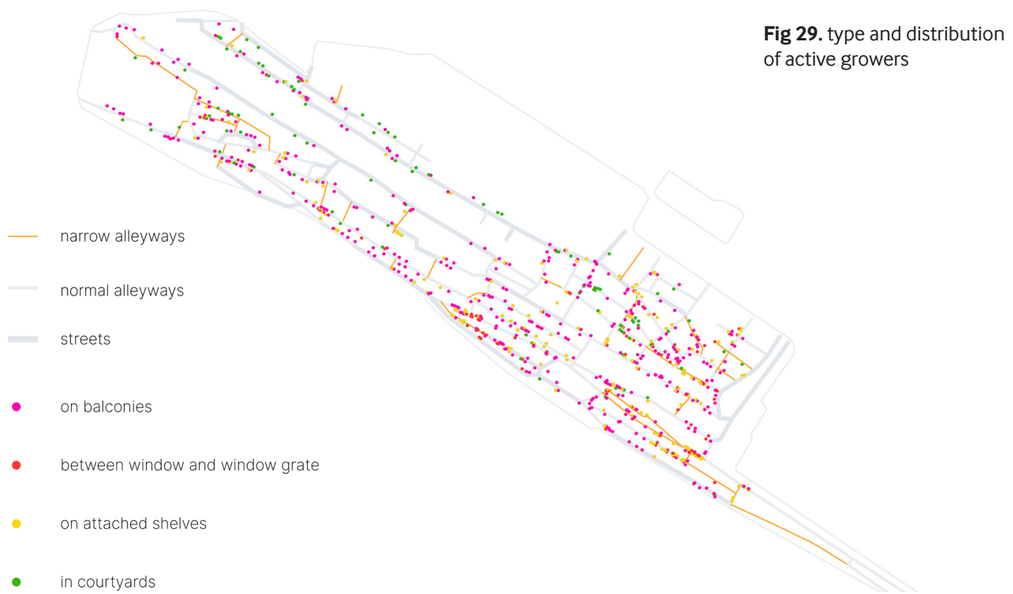


Fig 29. type and distribution of active growers

*Data Source/ **Lily Li***

Related attributes are picked and rendered onto the same map including "atmosphere" (typical B31 alleyway spaces/more open space/ordinary streets), "straightness of alleyways" (very narrow/typical/wide), "existing vegetation", "existing public spaces" (garden/playground/parking lot).

Based on this spatial data, we further analyzed the kernel density of plant growers in Barrio 31, and applied a search radius of 50m, 100m and 200m respectively. Also, we used the interpolation method to calculate the narrowness of space as well as the extent of typicality of alleyway atmosphere throughout the Barrio. In addition, we calculated the Euclidian distances from existing vegetation and public spaces separately, and exported the result as black-and-white bitmaps.

By studying the correlation between the distribution of existing plant-growers and several spatial variables, we could figure out what impacts could the social and physical attributes of Barrio 31 alleyways have on the grower's distribution, and thus further identify potential need for cultivating plants.

Fig 30. kernel density maps

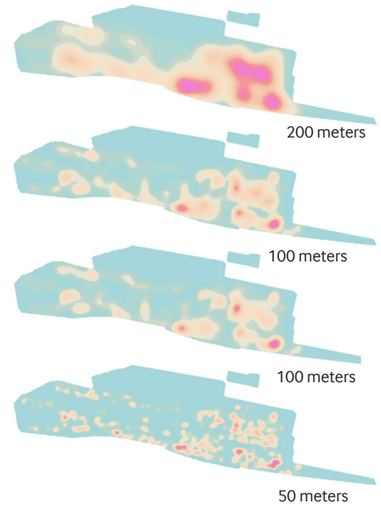


Fig 31. related attributes

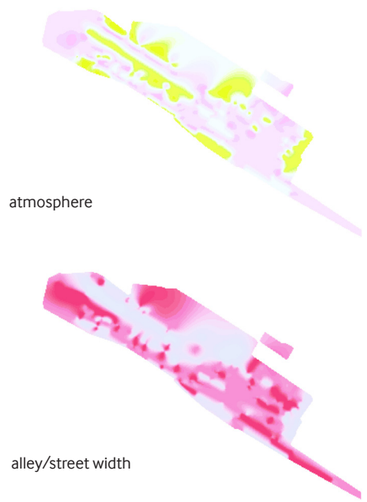
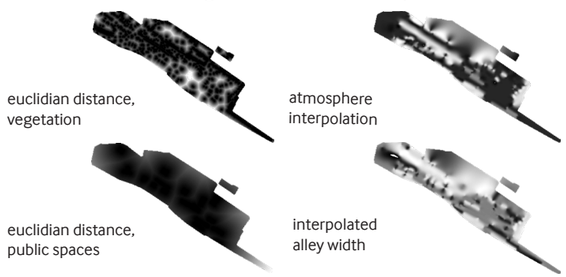


Fig 32. standardized dependent variables

Fig 33. standardized independent variables



*Data Source/ **City of Buenos Alres Planning Department***

To infer from the analytical maps provided, several initial conclusions were drawn as follows:
1. Residents adjacent to existing vegetation show less desire to cultivate plants.
2. Residents adjacent to open spaces show stronger desire to cultivate plants.
3. In typical Barrio 31 alleyways, where there is a stronger local atmosphere, residents tend to grow more plants.
4. The narrower the alleyways are, the more typical the atmosphere could be like a Barrio 31 space, and the more plant-growers tend to exist; however, the alleyways also become too narrow to grow.

Spatial Correlation Test

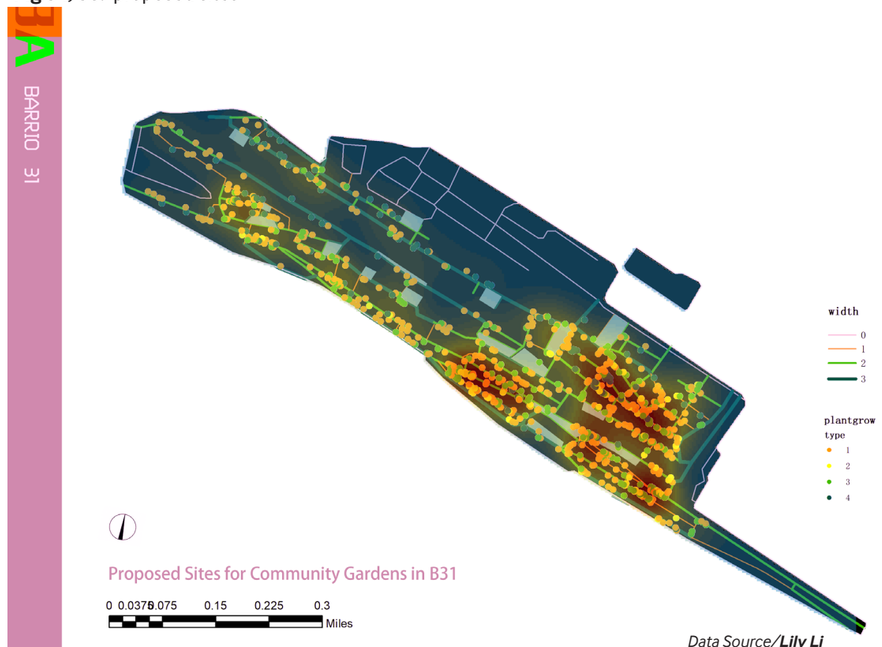
Using a dot matrix to take 14,353 sample points' color (range from 0 to 1, black-and-white) all over the Barrio, we transferred the data stored in the black-and-white channel into a dataset. The five spatial variables were thereby turned into five columns of data ranging from 0 to 1, standardized. Importing the data to R Studio, we analyzed the correlations between the variables, and found that width and atmosphere have the most evident correlation among all pairs of variables. This can be justified by logic: in the context of Barrio 31, the local alleyways are featured by their narrowness. Generally, the narrower the alleyways are, the more vibrant and informal the space grows.

The result of multivariate regression analysis shows no correlation exists between the narrowness of the alleyways and the kernel density of the growers. In contrast, when excluding all data collected in the narrowest alleyways, the regression result shows a robust correlation between the narrowness of the alleyways and the kernel density of the growers.

Conclusions and Recommendations

By cross-analyzing the spatial distribution of plant-growers and the social and physical attributes of Barrio 31 alleyways, we determined there may be potential growers in the narrowest alleyways, especially those that are far from existing vegetation and new public spaces. This is because of the correlation between narrowness and growers' density only exists (and strongly exists) when the alleyways are not too narrow – that is, wider than 50% of all alleyways, so that local growers can figure out a plan to grow plants somewhere that could both reach sunlight and belong to themselves. The Barrio 31 narrow alleyway pattern puts natural limits on people's autonomous growing behavior, leaving a large proportion of potential growers unsatisfied with the yearn for green. Based on the analysis result, four sites are recommended for shared gardening usage.

Fig 34, 35. proposed sites



*Data Source/**Lily Li***

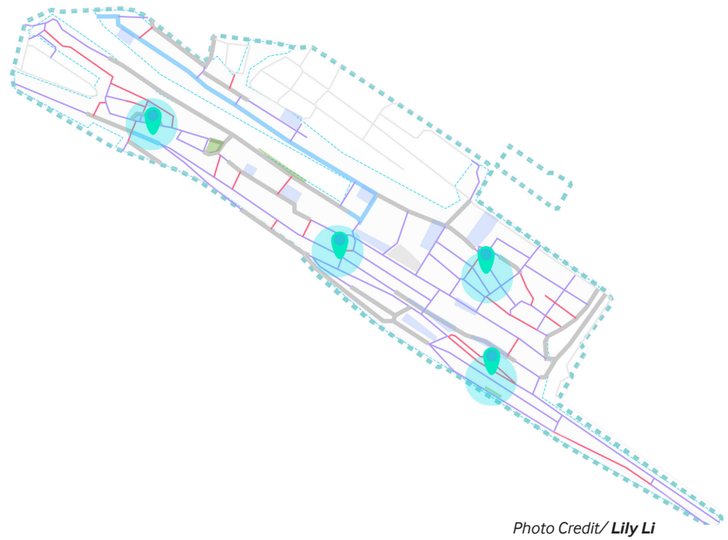


*Photo Credit/ **Lily Li***

Verde B31: a Necessity

In recent years, the majority of the City's interventions and formalization strategies have been confined to the physical realm. While these improvements were more than necessary, City leaders made one vital mistake: they failed to recognize that the residents also needed less tangible interventions, such as social programs, to eliminate the social fragmentation within the neighborhood. While the neighborhood's few public spaces are heavily used, residents limit their interactions to those who live in their manzana or cooperative.[1] The lack of transportation and other physical barriers in the neighborhood further exacerbate this issue, as residents experience difficulty moving throughout the neighborhood. This results in the social fragmentation which prevents the neighborhood from achieving unity and solidarity.

In addition to inadequate social programs, the city has also failed to provide new green space for residents. While urban green spaces provide many health-related benefits in informal contexts, the provision of urban green spaces was largely left out of these initiatives because the benefits of urban green spaces have a non-market price.[2] This makes it nearly impossible to be traded in an existing market, leading to insufficient consideration of green spaces in public urban-planning policies, such as was the case in the city's formalization strategy. Because Barrio 31 is densely built and has little space for new development, the creation of an entirely new public green space is unlikely. It would require the demolition or moving of homes and other structures, a practice that has already been quite detrimental to the neighborhood. Moreover, understanding public space as purely physical is extremely limiting, and fails to acknowledge the advances in technology that have extended public space into the digital realm.

One solution that could simultaneously address these issues of green space and neighborhood tensions is a new social program of shared "do-it-yourself" or "DIY" shared green spaces instituted by the residents. This idea involving shared public space would manifest itself in a digital manner, specifically a mobile application (app).

Why an app? Since today's public spaces also have a "digital skin," one that is capable of developing new ways of communication amongst neighbors, as well as building new relationships, which when utilized can "catalysing hyper-local social networks and visualising information related to the environment in a transparent way".[3] As such, the use of technology with the creation of an app could help improve social unity by bringing residents together through a shared digital platform. This platform will be used as a tool to better inform, organize, and mobilize residents around issues of concern, finding ways to improve pre-existing public spaces in the neighborhood. In the case of Barrio 31, the VerdeB31 app acts as a forum for residents to discuss the lack of

greenery and green spaces within their neighborhood, and collectively arrive at solutions to improve this. The VerdeB31 app is designed to both improve social interactions amongst the residents of Barrio 31, as well as increases residents' access to green space.

The app first starts as a multifunctional social platform meant to inspire the creation of DIY shared greenspaces. Moreover, it allows residents unrestricted access to an open resource of culture and knowledge, as well as to more easily call meetings, organize votes, and make decisions.[4]

Fig 36. verdeB31 app logo

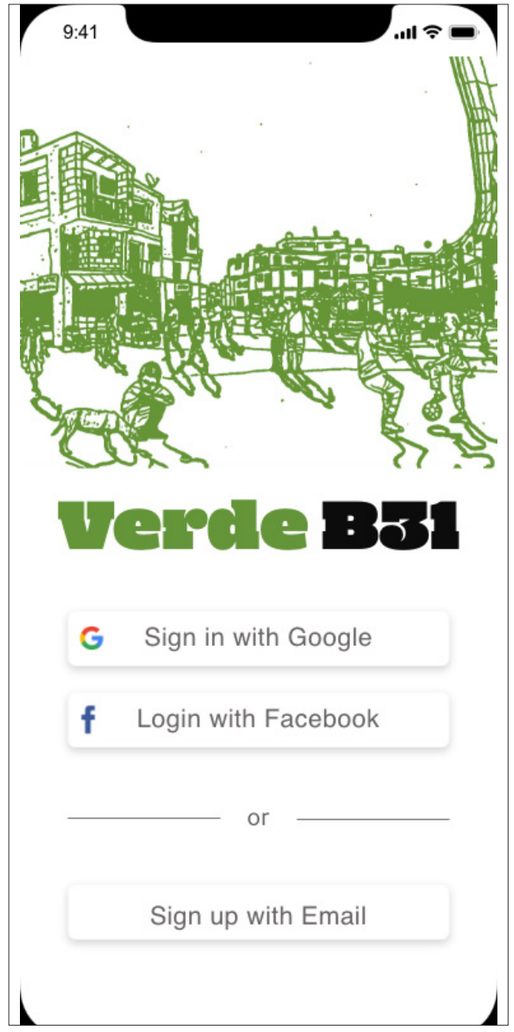


Fig 37. login screen for the VerdeB31 application

Footnotes

[1] Beyer, 3454.

[2] Toland, 60.

[3] Domenico Di Siena. Public Space as a Catalyst of Local Communities. (Urbano Humano, 2014).

[4] Drew Hemment and Bill Thompson. Digital Public Spaces. (FutureEverything Publications, 2013), 3.

Case Study: LiveWire

an example of a mobile application used for self-planning in the context of informality in the Global South

Fig 38. Community members and residents of Mzond, an informal settlement outside Johannesburg, South Africa come together using the LiveWire app

Photo Credit/ ***Ashlin Simpson***

LiveWire

Grassroot is a Johannesburg-based nonprofit specializing in building tools for marginalized communities, which commenced as a mobile app in 2017 called LiveWire. A platform that helps underprivileged communities engage with mainstream media, Livewire's mission is: "MEET, VOTE, ACT: enabling participatory democracy".[1] LiveWire is a new, easy-to-use, free mobile phone tool that helps communities in South Africa communicate and exchange information. It is a digital tool driven by communities' real needs. This tool works universally across any given data connection or phone type, it informs residents of meetings that focus on urban development. Community representatives can use the "press alert" function to create news alerts for media. The app then uses its algorithm backed function to complement the alert with information on the group's size and top-level statistics about its prior activity, and, after a quick review, sends out an email to a list of news desks. But most importantly, the app empowers the community by creating a greater sense of belonging. Through the platform, community members engage with local civic organizations and help them connect with mainstream society. For instance, every Saturday morning, residents of informal settlements in Mzondi Johannesburg receive notifications reminding them of their weekly meeting.[2] The app also helps individuals connect. Newcomers can download the app on any

device via data connection and receive several notifications a week that inform them of news or announcements of the community, or just to form new relationships within the community.[3]

In 2017, the government of Johannesburg obtained a court order and attempted to evict and demolish the Mondavi slum in response to residents demanding urban infrastructure upgrades such as the installation of toilets. As result, frustrated locals decided to take matters into their own hands and assembled to work together to uplift their surroundings without the government's help. The residents built informal housing, dug their own water sources, and built sanitation infrastructure, utilizing the powers of the LiveWire app to create a crowdfunding campaign to help them raise money to construct new toilets.[4] The community set up a Thundafund page and filmed a video of the leaders showing the toilets' dilapidated and unsanitized state. The Grassroot alert went out soon after, and in the end was able to raise over $5,000 to build toilets.[5]

Fig 39. toilets that were built by the Mzondi community in Ivory Park, Johannesburg

Photo credit / ***Ashraf Hendricks***

Footnotes

[1] "Grassroot."

[2] Ashlin Simpson, Livewire App Connects Communities and Media in South Africa. (International Journalists' Network, Aug. 14, 2018).

[3] Simpson, 2018.

[4] Simpson, 2018.

[5] Zoë Postman, Community Tries Crowd Funding to Get Toilets. (Ground Up, March 13, 2018).

The ‘Ins and Outs’ of VerdeB31

a digital extension of public space

A Social Platform

First and foremost, our app directly addresses the lack of social unity within Barrio 31, and in doing so aims to bring solidarity to the neighborhood. As Elena Parnisari found in her studies of Barrio 31, new interventions within the neighborhood must “promote high sociability, social integration and community participation” if Barrio 31 is ever to achieve true integration and evolve from a “villa” to a “barrio” in Buenos Aires.[1] The VerdeB31 app responds directly to this by providing a shared platform for residents to communicate, discuss ideas and arrive at shared solutions together, as well as interact with those they may not ordinarily cross paths with outside of their immediate manzanas or cooperatives. In sum, it is a digital extension of the public space: a social platform designed to facilitate communication amongst all residents of Barrio 31.

VerdeB31 will ensure that no single group owns the digital space; it is inherently open and allows for all users - especially marginalized groups such as women, the elderly, and children who are often excluded from public spaces out of fear over their personal safety - to feel free to voice their opinions and communicate with others without feeling threatened. Furthermore, the costs associated with data and Wi-Fi access that prevents many from being able to access the Internet are no longer barriers thanks to the city’s integration efforts which included the installation Wi-Fi towers throughout the neighborhood.

Onboarding Screens

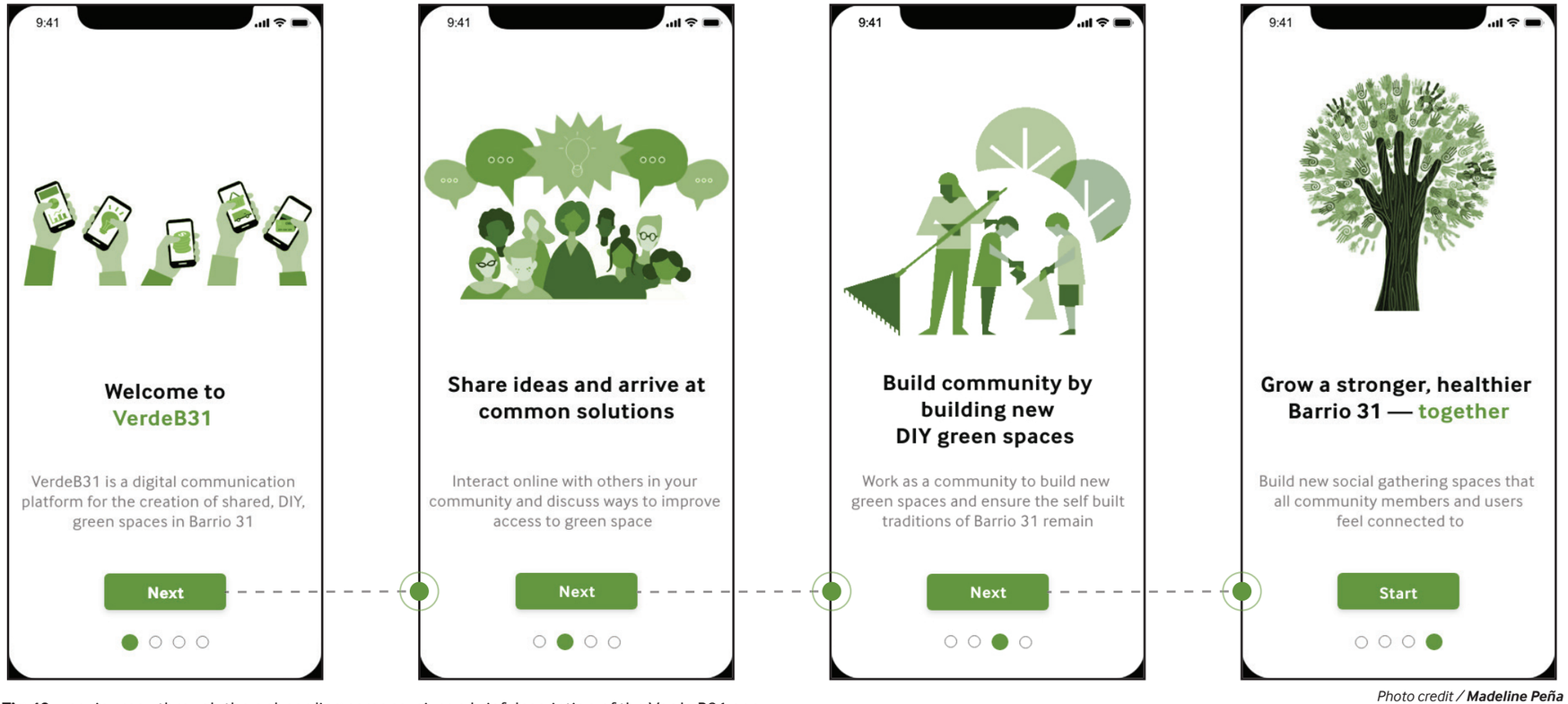


Fig 40. user journey through the onboarding screens, gives a brief description of the Verde B31 app

*Photo credit / **Madeline Peña***

"What joins people and makes them powerfully supportive is not the fact that they think in the same way, but that they experiment and transmit the same. Community is based on communion. Collectivity, instead, is organized according to communication. Apparently, community and collectivity imply a similar reduction to unity. The difference, however, is important and is based on the fact that community requires coherence, while a collectivity needs and produces cohesion."

Manuel Delgado,
“The common and the collective. Public space as a space of and for communication,” 2008

Self-Planning Green Space

The previously mentioned key characteristics of the neighborhood such as its informal/self-planned nature and its inherent diversity are characteristics which make the neighborhood as special and unique as it is. However, as mentioned previously, prior interventions neglected these aspects, or only prioritized some over others. Conversely, with VerdeB31, all of these elements are championed. For instance, residents are included in all stages of the project, just as they were when they built their homes. While they are part of the initial drafting stages that determine the timing and location of future greenification projects, they are also part of the essential building stage where they work together as a community to make their ideas their reality. Most importantly, this app protects the spontaneity that is the foundation of the neighborhood's informal nature as new spaces reflect the identity of the users and therefore gain.

As stated earlier, residents throughout Barrio 31 are clearly yearning for green spaces; moreover, the VerdeB31 focuses on green space because it is a problem impacting all residents, and not just one group of residents or a few manzanas. Bringing together residents around a commonly shared concern—the lack of green space—enables all residents to feel directly heard instead of relying on the bureaucratic manzana system to represent their interests Through the app, new green spaces of Barrio 31 will promote connectivity: they are built by residents throughout the community, for all residents of the community. They will encourage gathering and different types of recreation activities, specifically passive recreation, as they now include shade and protection from the elements. Through the VerdeB31 app, residents are able to discuss this lack of green space and find ways to improve it— together.

Fig 41. example of what a possible DIY green space could look like

Rendering credit / ***Soyeon Kim***

Fig 42. grandmother and her granddaughters standing together in a public plaza outside of Barrio 31 elementary school

Photo credit / ***City of Buenos Aires, Secretaría Integración Social y Urbana***

Features

The first versions of the app include a newsfeed, catalogue of current growers (DIY Catalogue), potential sites, a discussion forum, and a voting forum. The newsfeed displays stories about the "greenification" of Barrio 31, including progress on ongoing projects, the unveiling of newly greenified spaces, as well as information about upcoming projects. Users can read details of the project, see pictures of the progress or finished product, as well as comment, like, and share these posts to other social media platforms. The DIY Catalogue map shows where residents throughout the neighborhood have provided green space for themselves, what structures they are using to do so, and a picture of the plant. The Potential Sites tab shows the locations of recommended sites. These sites were chosen from a spatial analysis of the DIY Catalogue that shows the sites of opportunity, or the spaces where the greatest density of growers already exists. These sites were chosen for the residents, in an effort to prevent competition, and allow the first DIY green space projects to go underway without conflict. These four sites also propose four different types of site: an existing playground, a rooftop, an alleyway, and a parking lot. This allows for a variety of choices that allow for the creativity of the residents to shine through. On this page, residents can explore, choose the site from the map, and view a panoramic image of the site. This leads us to the voting forum page, where residents can vote on which potential site they prefer. After voting, residents can see which site has the largest percentage of the vote, and once the voting period is over, this will be the designated site.

*Photo credit / **Madeline Peña***

Fig 43. user journey through the Verde B31 app features in the initial version

Fig 44. user journey through the Verde B31 app features in the initial version

*Photo credit / **Madeline Peña***

LOOKING TO THE FUTURE

Looking to the future, the app will not only stimulate collaboration among residents, but will also build a network of green spaces and community gardens that serve as anchors of community throughout the barrio. These spaces will promote high sociability, social integration and community participation for generations to come. While currently the app is is meant to stimulate the DIY green spaces program, eventually it will be crowd sourced, transforming together with residents and their needs: as residents work out the kinks of the program and mobilize on their own, they will no longer use certain features, such as the vote tab or the proposed sites tab to find spaces of opportunity. In short, the platform will grow organically as the residents see fit, just as Barrio 31 has since its inception.

The app is also designed to work in conjunction with other programs in Buenos Aires that focus on community gardening and urban farming. It is intended specifically for the residents of Barrio 31 and demonstrates a conscious understanding of the diverse residents within the city, particularly those in informal settlements, to ensure the Barrio changes as they see fit. When used alongside City initiatives that focus on green spaces, it guarantees that the unique voice of the residents of Barrio 31 are at the center of the conversation.

Another long-term goal of the app is for the ability to have different versions made for similar neighborhoods in Buenos Aires and beyond. One way this could easily come to fruition is through extending the city's urban gardening program to encompass Verde B31. An "Estaciones Saludables" run by the city of Buenos Aires already exists in the neighborhood, which teaches residents gardening techniques such as growing their own food. This program could be incorporated into the app through the use of an education tab, where sessions could be recorded and uploaded to the app, as well as provide other educational resources with other helpful facts like what produce is in season and recipes that align with this.

Future versions of the app could even include a space to register gardens that residents have built at their home, creating a virtual greenbelt. Users can include what types of foods they are growing, offer others what they have grown if they have too much, and even trade produce. The discussion forum could grow to include a question and answer forum where residents offer growing suggestions and advice on growing at their homes. This offers another opportunity for social interaction amongst residents both virtually and in-person, beyond just building new community green spaces—together.

Footnotes

[1] Parnisari, 125.

[2] Di Siena (2014).

Conclusion

Verde B31 is all about creating new spaces, and focusing on solidarity inside of the Barrio. Through the use of the app, these new gathering spaces prioritize the unique characteristics of Barrio 31. All residents are able to have their voices heard, not just a select few, or the most vocal. Moreover, the people and the characteristic symbols of the neighborhood are placed at the center of the intervention efforts—the diversity of the residents, by allowing the voice of all the residents to be heard in one place. What's more, the app ensures that the leveling of the playing field gives the concerns and voice of the residents being impacted by the changes to their neighborhood a place for exposure and prioritizing. They can be the ones actively pursuing solutions to shared concerns through the use of this app.

The new public spaces of Barrio 31 also promote connectivity. These places will gather people together and promote the encounter between neighbors, as well as high sociability, social integration and community participation. The residents can be part of the project stage and of the building stage as well. The key word underlying the action of the project is spontaneity. In fact, simple strategies and tactics must be pursued to reach the best possible change of the place with a low risk of failure, and keeping the identity of the neighborhood and of the neighbors. Their homes were built by themselves, the community was built by themselves, they should also be part of the process of improving the public spaces.

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looking into Queens

Reimagining Public Space and Street Vending Through Digital Engagement

Street vendors constitute a fundamental component of New York's street life. They are not just a feature of the city's landscape. They represent nodes for social interaction and economic activity, where migrants can find work and people can enjoy reliable and affordable goods. However, the space for vendors in the city is increasingly limited, and they have to face hostile policing and no effective access to new permits to vend legally on public spaces.

The restrictive approach that the city has taken can be modified to better accommodate vendors. We believe that there are tools at our disposal to reimagine street vending, and to encourage this practice to bolster its positive economic and social effects. For this project, we aimed to explore the different restrictions that hinder the operation of street vendors and bridge the gap between these regulations and the reality of selling on the street. We also wanted to reimagine open spaces of opportunity along one of the main corridors of Queens.

As a commercial thoroughfare, Roosevelt Avenue is home to a large number of street vendors, mainly clustered around the subway stations where foot traffic is busiest. These stations include 82nd street station, 90th street station, Junction Boulevard, and Corona Plaza. As a result of the rules and regulations governing these spaces, street vendors operate in a fine margin between the formal and the informal. The crisis that we currently face has made evident that they provide essential services to the everyday life of the city, but it has also highlighted the precariousness of their conditions.

Informal vendors face an uphill battle every time they go out in the street to make a living. Not all of them have electricity in their carts and they have a hard time accessing bathrooms. They also need to make informal agreements with brick and mortar shops to use facilities to wash their hands and clean their carts.[1] To assist them in changing this regulatory landscape, we proposed to create a platform for advocates and policymakers to enhance street vending and to radically reimagine the space where vending takes place.

This platform is composed of three interactive elements: (i) maps showing the optimal locations for potential vendors along Roosevelt Avenue; (ii) visualizations on policy and regulations for vending, emphasizing the spatial component of these restrictions; and (iii) a design toolkit to better accommodate and integrate vendors to the streets in the spaces of opportunity that we identified.

Photo Credit / YouTube: **Serriniverse**

Photo Credit / **Buck Ennis**

Photo Credit / **Google Street View**

Photo Credit / **Marieke Feenstra**

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Photo Credit / **New York Times**


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Vending in New York City

understanding Queens and the experience of vending within it

Street Heterogeneity: Vending in the Most Diverse County of the United States

The street vendors of Queens have played a key role in expanding the borough's reputation as a culinary destination. Despite this, vendors find themselves in a precarious position. Street vending in New York City comes with an array of restrictions in terms of permits, placement, and economic uncertainty. Vendors are far too often forced to evade certain rules to keep their business operating.

Roosevelt Avenue is a commercial artery that runs through the neighborhoods of Corona and Jackson Heights in Queens. Both neighborhoods are ethnically diverse, and large Latinx and Asian communities call them home. There are over 167 different languages spoken, and the area is known as a hub for many Latin, Colombian, Ecuadorians and South Asian communities, filled with food from different cultures.[2]

Roosevelt Avenue lies below the elevated 7 train of the New York City Subway, a heavily used line that links the neighborhoods with Manhattan. While both Corona and Jackson Heights are mainly residential in nature, Roosevelt Avenue itself is a primarily commercial street. The streetscape is dominated by large numbers of small shops, restaurants, and markets.

Existing vendor locations and vendor types

As a commercial thoroughfare, Roosevelt Avenue is home to a large number of street vendors, mainly clustered around the subway stations where foot traffic is busiest. These stations include 82nd street station, 90th street station, Junction Boulevard, and Corona Plaza.

But not all street vendors are the same. In Figure Q2, we categorized all vending types along Roosevelt Avenue. We identified kiosks, in black, fruit stands, in green, prepared food vendors in red, and accessories vendors, in blue. There is also a wide spectrum in the type of equipment that vendors use, ranging from the most formal, such as kiosks and stalls attached to brick and mortar shops, to the famous food trucks, to folding tables and supermarket carts.[3]

The heterogeneous nature of street vending illustrates the complexity of this economic activity, and conveys varying degrees of formalization within vendors. This also conditions their ability to comply with city regulations.

Storefronts and food stands along Roosevelt Ave in Queens, NY.

Photo Credit / **Google Street View**

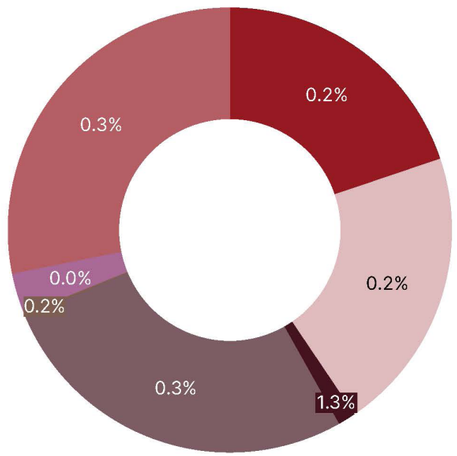


Fig Q1. Chart showing the break down of ethicities in Queens.

White alone (not Hispanic or Latin)
Black or African American
American Indian and Alaska Native
Asian
Native Hawaiian and Other Pacific Islander
Two or More Races
Hispanic or Latino

Illustration/ **Xiyu Chen**
Data Source/ **2018 1-year American Community Survey (ACS)**

queens

street vending on roosevelt ave

Fig Q2. Mapping street vendors in NYC by category. Data Source: LiveXYZ

Identifying Issues with Vending

Street vendors operate in a fine margin between the formal and the informal. The crisis that we currently face has made evident that they provide essential services to the everyday life of the city. But they have to work often in precarious conditions.

By precarious we mean that vendors have little to no space to prepare food or to store their goods meaning they are often forced to do this at home. Not all of them have electricity in their carts and have a hard time accessing bathrooms. They often need to make informal agreements with brick and mortar shops to use facilities to wash their hands and clean their carts.

On top of the legal restrictions for vending, informal vendors face an uphill battle every time they go out in the street to make a living. However, there is room to improve public policy and infrastructure to create better conditions for street vending.

Stakeholders

Advocacy groups and public officials work tirelessly to change these regulations and open formal channels for street vending in New York City. The Street Vendor Project and Jessica Ramos, a New York State Senator representing district 13, which includes Corona and Jackson Heights, work hand in hand with vendors to improve the situation of informal commerce in the city.

Their goals include the removal of vending license caps and the increase of open space available for vendors. Recently, Senator Ramos has pressed the MTA to allow vendors to operate in unused retail spaces within the 74th street Jackson heights station.

They are our intended audience for our project. They have both direct contact with street vendors and influence in city policy to push for the legislative and physical changes that vendors require to improve their livelihoods. We want to arm them with effective tools for advocacy, policy evaluations, and design ideas to create a more inclusive and open city.

Our Vision

The existing rules for street vending make it exceedingly difficult for vendors to operate within the law. They have to face temporal restrictions, lack of suitable space to conduct their businesses, restricted access to sanitary facilities, hostile policing, and increasingly scarce permits.

The restrictive approach that the City has taken can be modified to better accommodate vendors. We believe that there are tools at our disposal to reimagine street vending, and to encourage this practice as a form of both economic activity and social connection.

To accomplish this, we want to create a tool for advocates and policymakers to enhance street vending and to reimagine the space where vending takes place. This tool, in the form of an online platform, will contain spatial analysis that illustrates the current limitations for vending in public space; it will also provide a toolkit to intervene in spaces of opportunity and repurpose them to foster social interaction and economic activity.

Photo Credit / **Danny Mendoza**

Photo Credit / **Street Vendor Project**

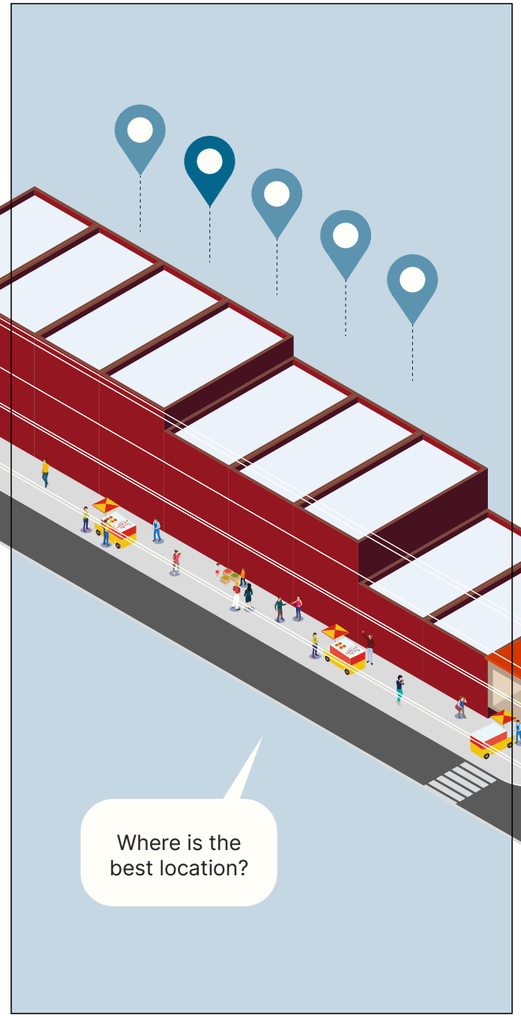
We want to create a tool for **advocates and policymakers** to enhance street vending and to reimagine the space where vending takes place. This tool, in the form of an online platform, will contain spatial analysis that illustrates the **current limitations for vending in public space**; it will also provide a toolkit to **intervene in spaces of opportunity** and repurpose them to foster social interaction and economic activity.

Research on Street Vending in Queens

Through our Policy, Location, and Innovation toolkits the following sections become an accumulation of research to support our proposal.

Policy

Location



Innovation

The Platform

Our “Vending in Queens” platform provides a way to answer our key research questions. With our move to the digital realm, providing meaningful content online contributes to our goals of creating accessible information for both advocates and policymakers to share.

Policy Toolkit

The policy toolkit identifies where regulations are a barrier to street vendors

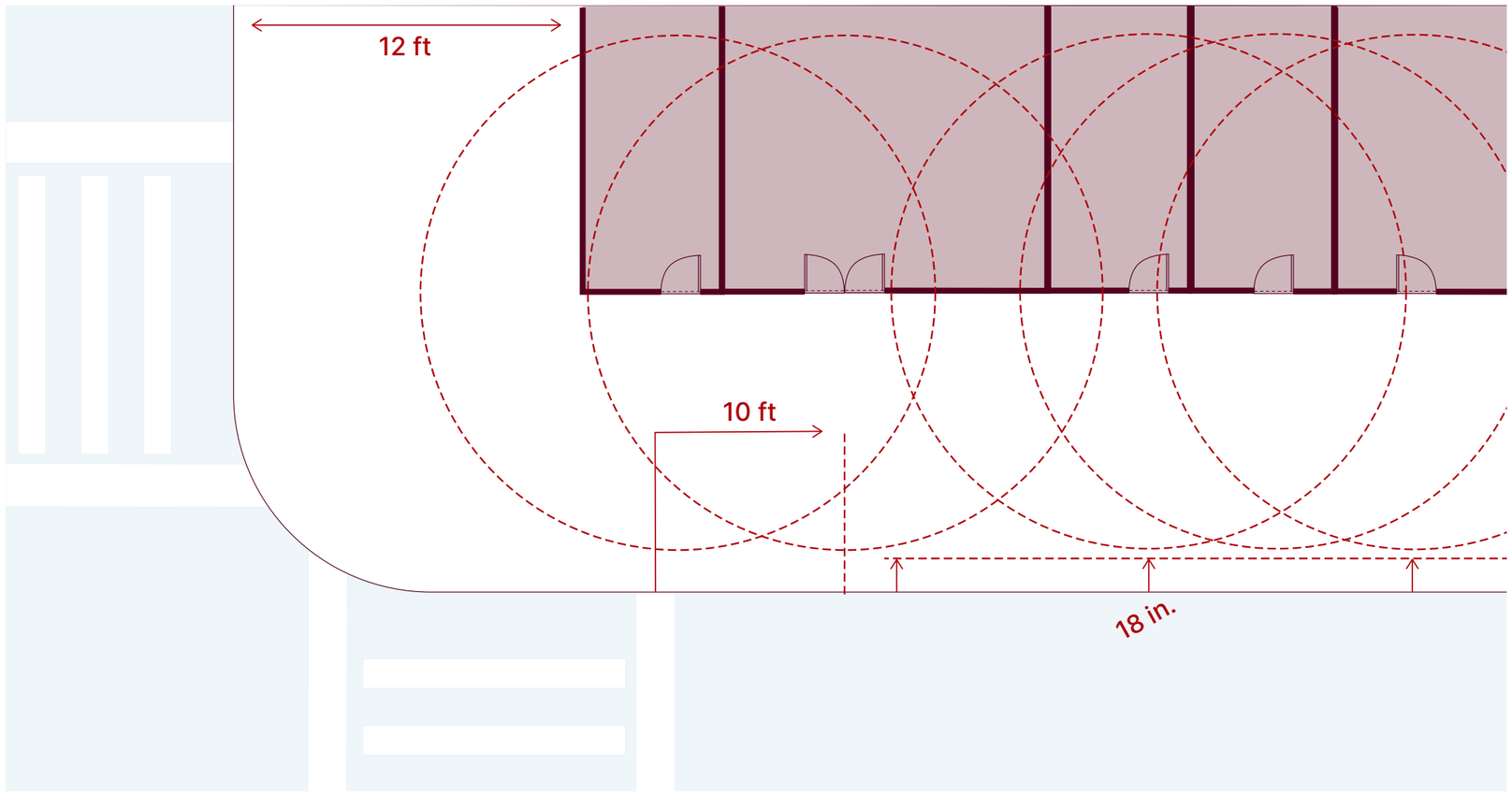
Vending Regulations

There are two types of licences to sell on the street in New York. The first is a general vending license that is required for anyone selling non-food items, while the other is a mobile food vending license specifically for vendors specialized in food.

General vending licenses currently have a city-wide limit of 853 licenses with over 3,000 people on the waiting list. While there is no waiting list to obtain a mobile food vending license, the number of mobile food vending permits are capped at 3000, with all waiting lists closed. It is currently estimated that it takes almost a decade to receive a mobile food vending permit through the city.

Anyone looking to start selling food legally on the street will likely not wait 10 years to get a permit. Instead, there is a thriving underground market for these permits where people who have the permits will rent them for a substantial profit. While the city only charges around $250 for the license and the permit, obtaining a permit on the underground market can cost over $10,000. Some vendors pay the amount and risk going into debt, while others simply just go without and sell without a license.

But there are more obstacles than a restriction on obtaining permits. Vendors also have to navigate strict regulations on where and when vending can take place on the street. To start, all vendors must have their table or stand on the sidewalk less than 18 inches from the street curb. They must also be set up no less than 10 feet from a crosswalk. The sidewalk on which they set up has to be over 12 feet wide from building to street. And finally, their table or stand has to be greater than 20 feet from any doorway.[4]



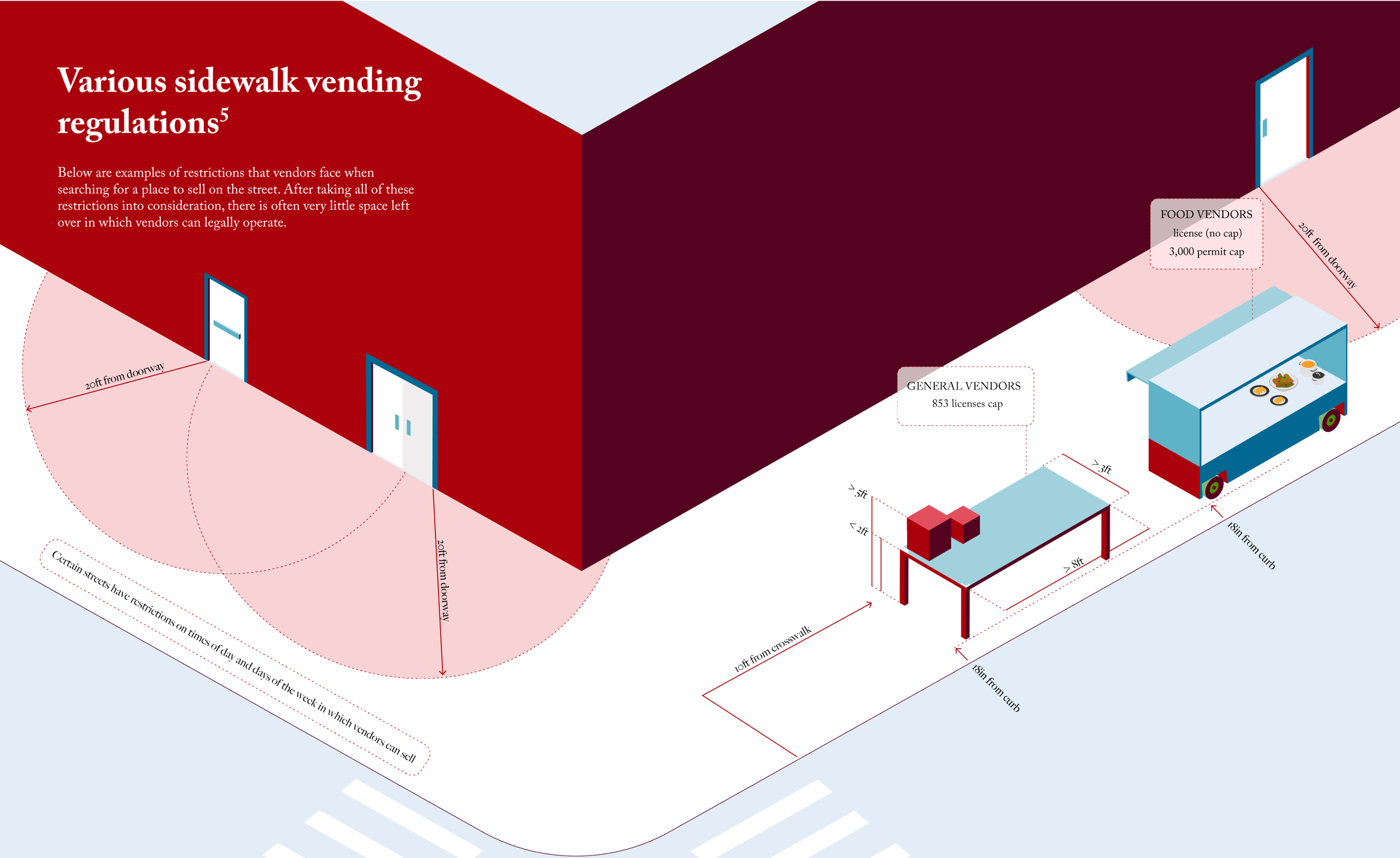
Example of restricted areas around doorways on Roosevelt Ave.

Ticket issued to food vendor.

Photo Credit / **Adam Disilvestro**

Various sidewalk vending regulations[5]

Below are examples of restrictions that vendors face when searching for a place to sell on the street. After taking all of these restrictions into consideration, there is often very little space left over in which vendors can legally operate.



Location Toolkit

The location toolkit identifies places of opportunity using different scenarios based on socio-economic criteria.

The location toolkit identifies places of opportunity using different scenarios based on five socio-economic criteria that influence the daily operation of street vendors. These include 311 complaints made against vendors, income level, distance to subway station, land use, and sidewalk widths.

Criteria and Indicator Selection

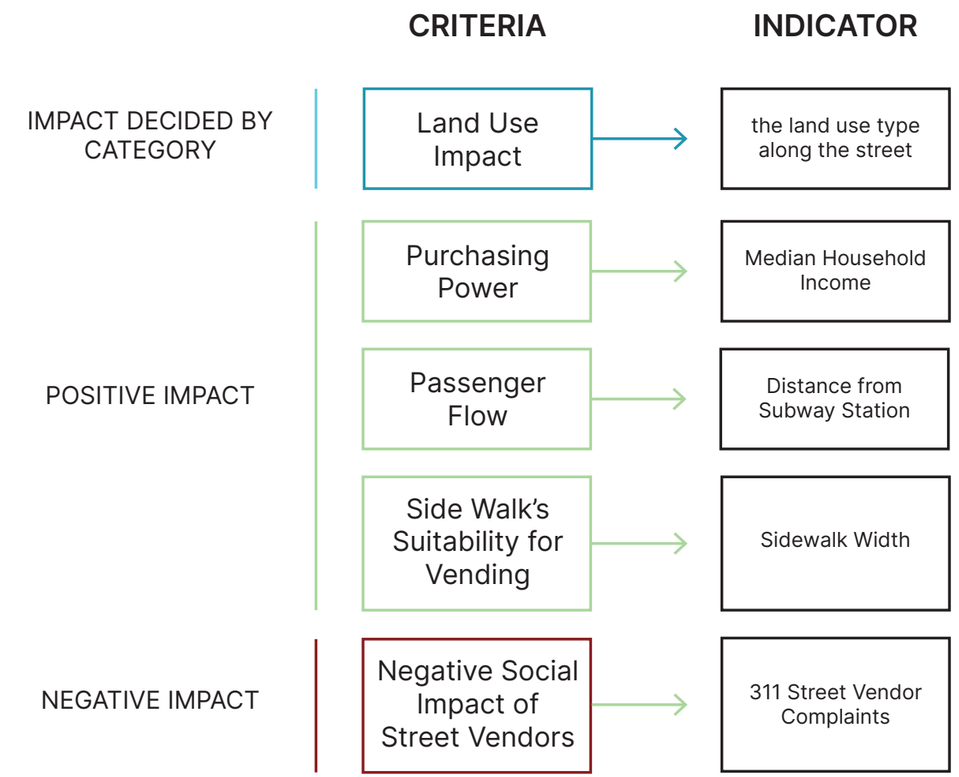
In order to choose criteria reflecting neighborhood characteristics, we first discuss situations that may impact where a street vendor would want to locate. Whether a vendor's location is optimal depends on its relationship with the building users behind it, the need for its goods such as food or accessories, the number of potential customers nearby, the purchasing power of the neighborhood, and the suitability of the built environment to the vendor's stand.

Based on these factors, we specify criteria that positively or negatively impact the location and identify indicators using available data (Figure Q3). First, land use has a variety of impacts on the location. A residential lot behind the vendor may help the vendor form a stable customer source, while a commercial lot may have a competing relationship with the vendor, reducing their customers. New York City has a specific requirement on the distance the vendor must maintain in relation to the storefront. Therefore, the areas near commercial lots may be less feasible than those near residential lots. Moreover, the areas near vacant lots are likely to be a space of high potential for vendors. Although there are no current cases where vacant lots are used to provide space for vendors, considering the large group of vendors and limited open space in Jackson Heights and Corona, it might be a potential policy innovation. Land use impact can be measured directly by the land use type along the street.[6]

High purchasing power, high passenger flow, and a sidewalk's high suitability for vending are all considered to have a positive impact on the site for street vendors. Specifically, customers with high purchasing power are more likely to consume more goods. Although customers with higher purchasing power may not tend to buy goods from street vendors, when considering communities with unified socio-economic characteristics like Jackson Heights and Corona, the rule that high purchasing power buys more goods can be assumed. Purchasing power can be measured by median household income.[7]

High passenger flow will bring out more business opportunities. High passenger flows are often found in busy traffic nodes, streets, and public squares. Given the fact that many of the neighborhood's busiest intersections are adjacent to subway stations, we measure areas of high passenger flows by distance from a subway station.[8] Sidewalk suitability is a relatively subjective criterion. From the government's perspective, vendors would typically prioritize being located on wider sidewalks in order to make the congested, narrow streets of Jackson Heights safer and more

Fig Q3. Criteria and indicators used for Location toolkit analysis.



walkable. Other indicators such as street design and site planning will be discussed in other parts of our report. Additionally these indicators are not easy to quantitatively measure.

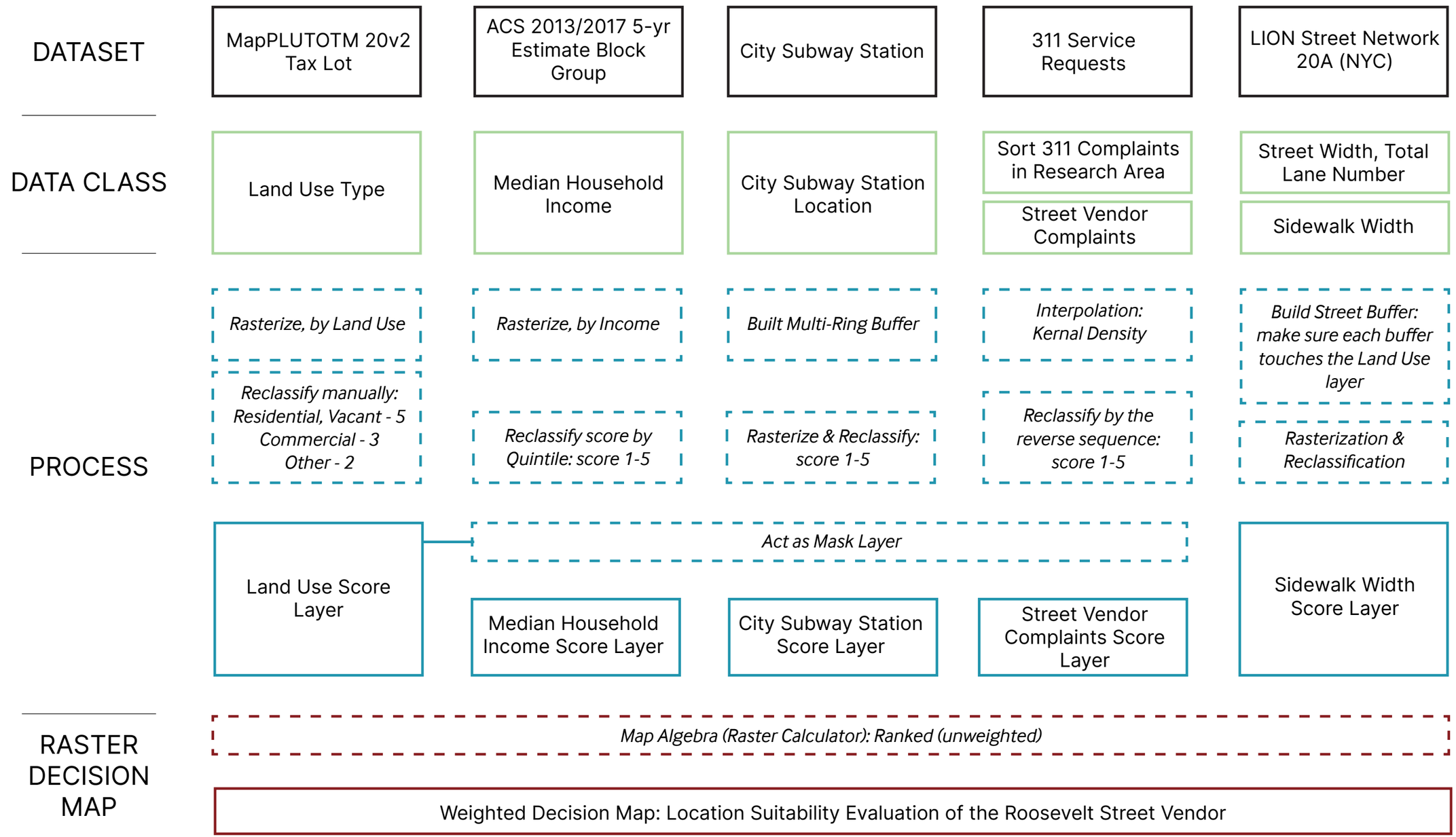
We also added a negatively impacting criteria based on the location to a vendor. The 311 street vendor complaints are used to assess areas that vendors need to avoid.[9]

Spatial Analysis Process

We used MapPLUTO™ 20v2 Tax Lot[10], City Subway Station, 311 Service Requests, and LION street network 20A (NYC) dataset[11] provided by the U.S. Census Bureau, New York City Department of City Planning, Metropolitan Transportation Authority (MTA), 311 & Department of Information Technology and Telecommunications (DoITT) to conduct our analysis.

After cleaning the data, geospatial processing, rasterization, and reclassification was performed. By scoring each criterion on a scale of 1 to 5, we created a score map for each criterion. As the land use data (MapPLUTO™ 20v2 Tax Lot) is within each block, there is a blank area between street data (LION street network 20A) and the land use data. Considering the difficulty in expanding land use data, we decided to expand the width of street lines to intersect with the land use layer and other related layers. Then, the overlapping areas are the resulting representations for the street vending location score. Even though the overlapping areas are not the sidewalk that vendors stand

Fig Q4. Full decision map for analysis.



in reality, they can still help us reach our goals shown in Figure Q4.

For the land use score layer, we manually rasterize and reclassify the layer. The residential and vacant land use are assigned 5, the commercial is 3, and other land use is 2. Later, we use the land use layer as a mask layer to clip other layers (Figure Q5, Figure Q6).

For the Median Household Income score layer, we rasterize it and reclassify the score by quintile (score 1-5). Then, it is clipped by the land use layer to receive the block-level result (Figure Q7, Figure Q8).

For City Subway Station Score Layer, we first build a multi-ring buffer (50m, 100m, 200m, 400m, 00m), and then rasterize it and reclassify the score from 1 to 5. Then, it is clipped by the land use layer to get the block-level result (Figure Q9, Figure Q10).

For Street Vendor Complaints Score Layer, we first use interpolation by using Kernel Density, setting the search radius as 200 meters. Then, we reclassify the result by the reverse sequence – the nearer raster receives a higher score. Then, it is clipped by land use layer to get the block-level result (Figure Q11, Figure Q12).

For Street Width Score Layer, we first calculate the sidewalk width by using street width subtracting the product of the total lane number and average lane width. Then, we build a buffer and make sure each buffer touches the land Use layer. Later, we rasterize it and reclassify the score from 1 to 5 (Figure Q13, Figure Q14).

Finally, we use the Raster Calculator to add all score layers up. Here, only the overlaying raster will be added. As a result, the map below congregates all the layers. The area with darker green is identified as the places of opportunity (Figure Q15).

Fig. Q5, Q6

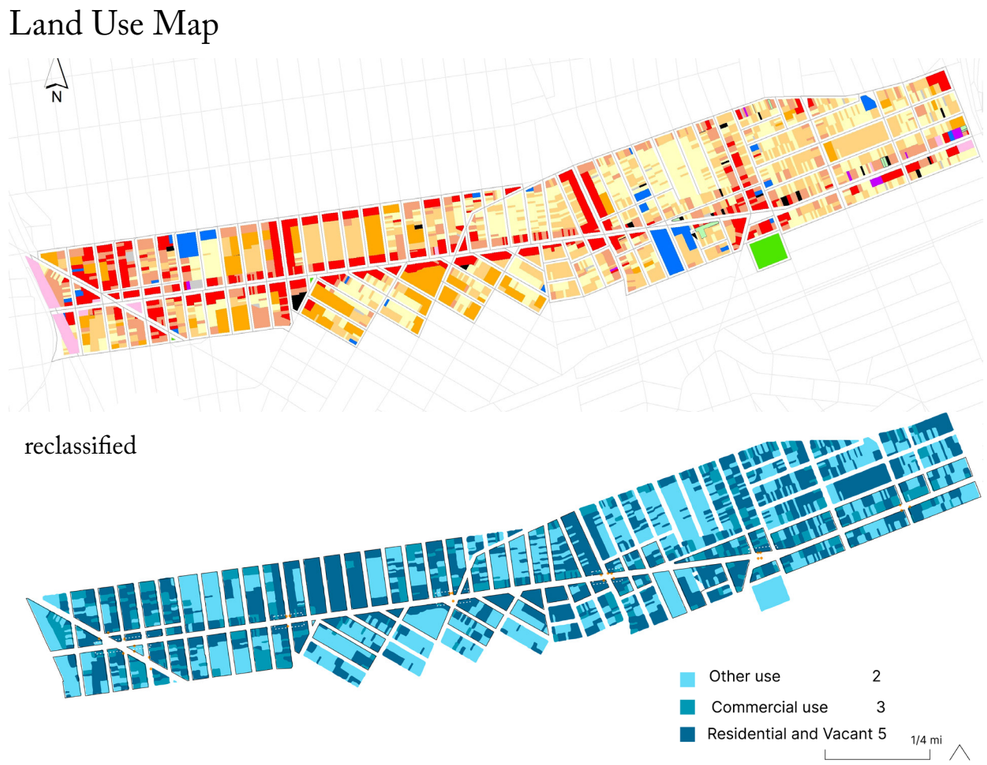
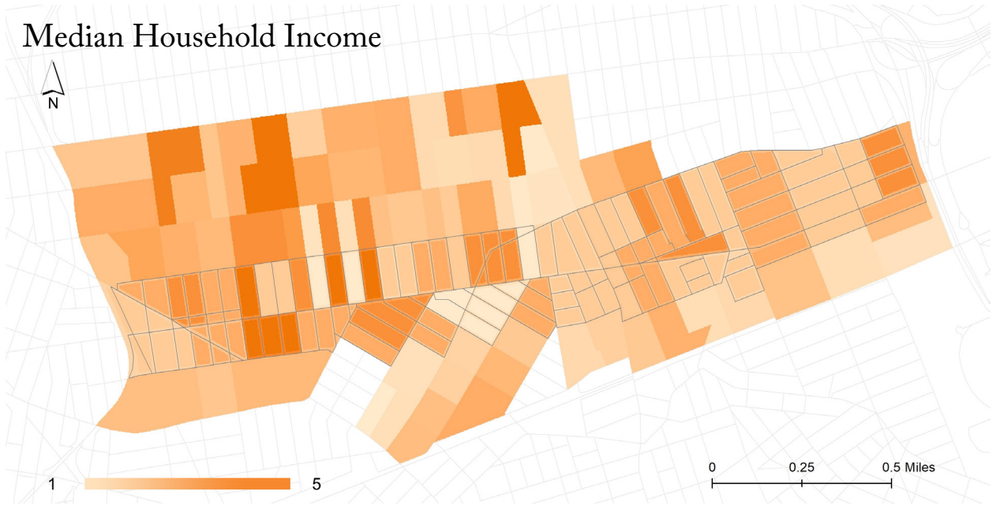


Fig. Q7, Q8



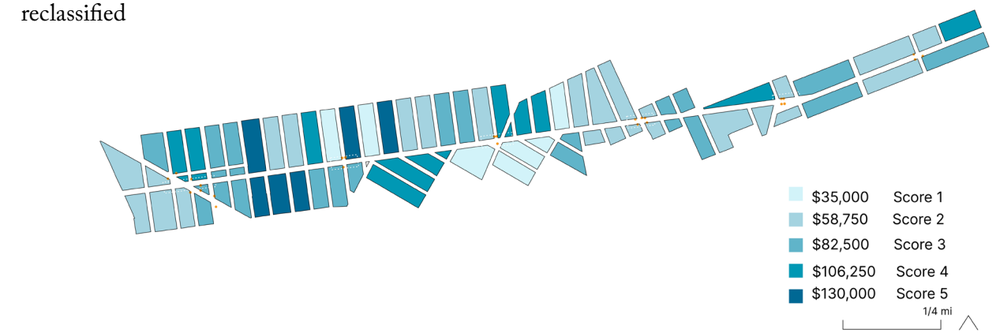


Fig. Q9, Q10

Distance to Subway Stations

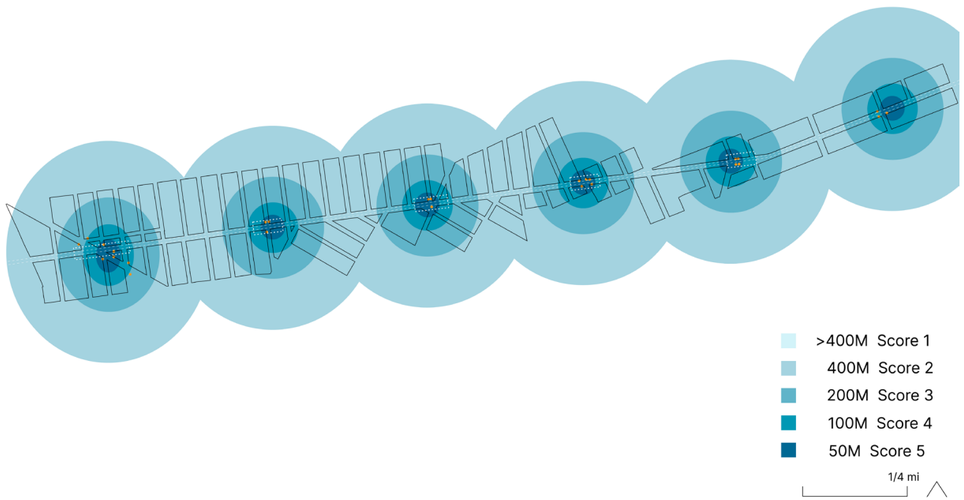
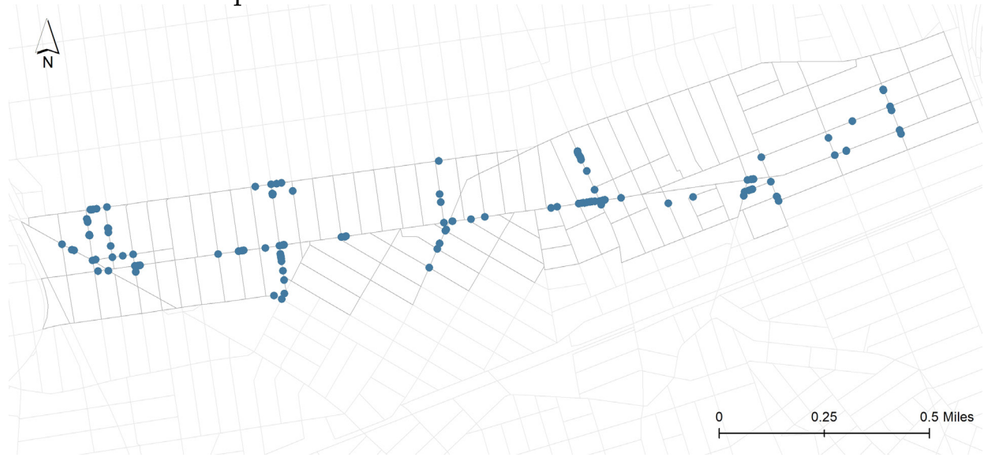


Fig Q11, Q12

311 Vendor Complaints



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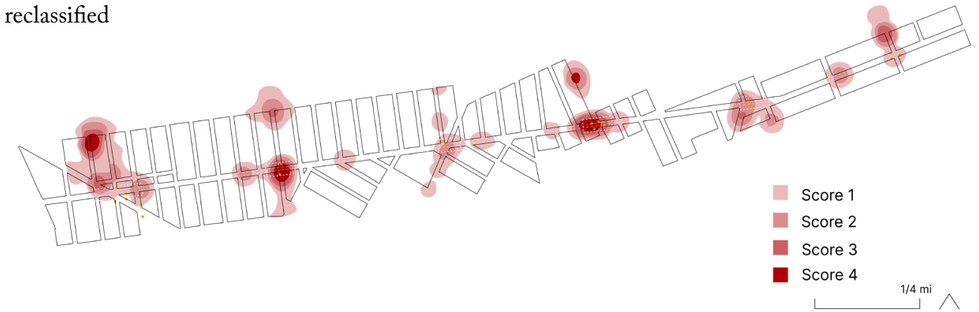
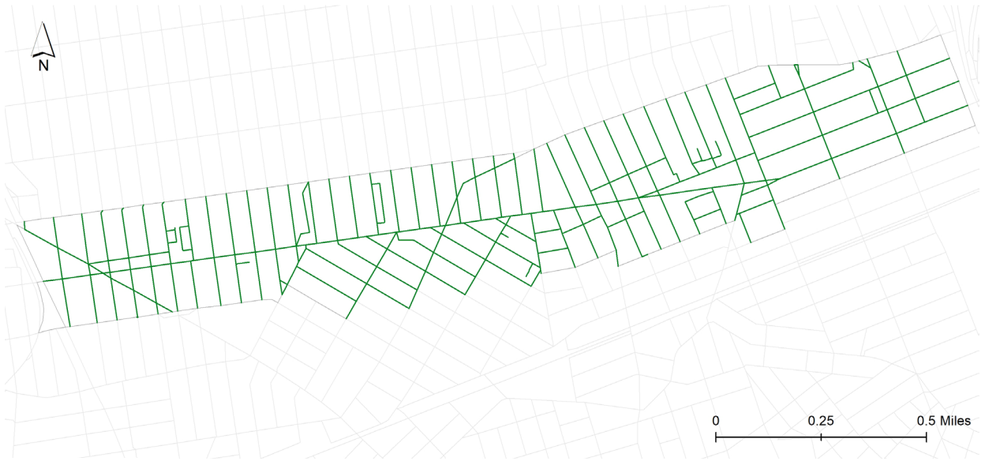


Fig Q13, Q14

Sidewalk Width



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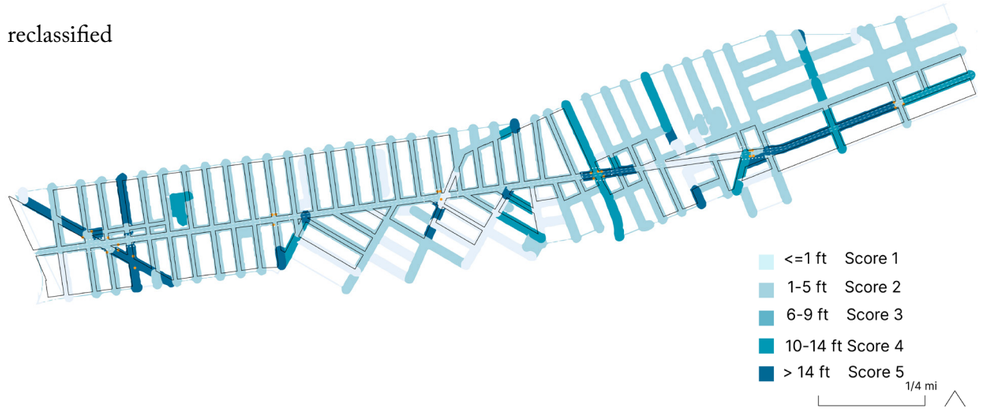
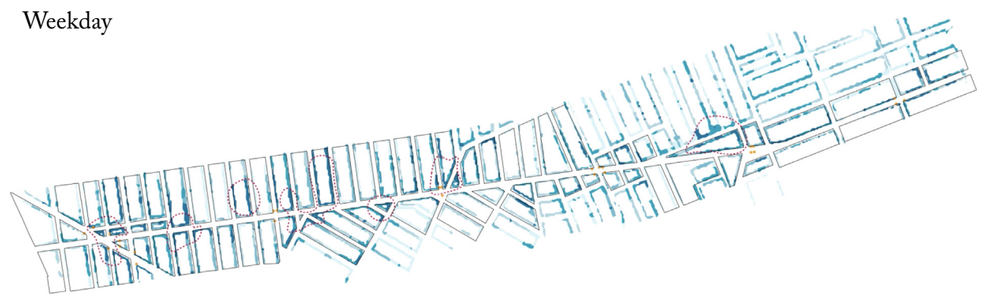


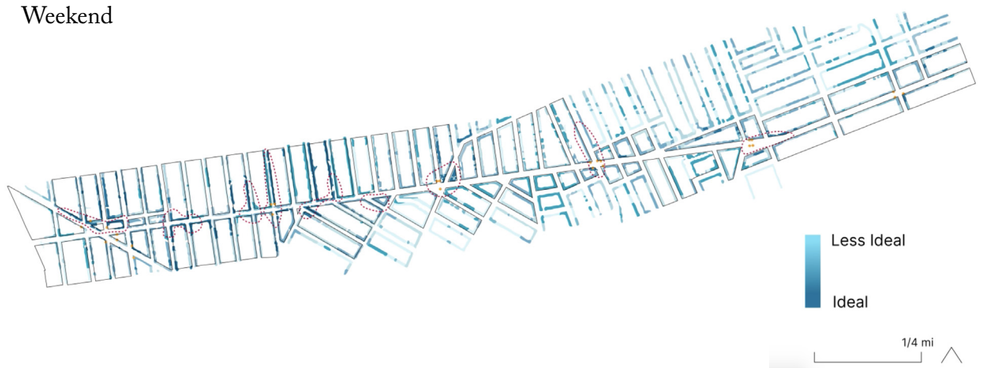
Fig Q15, Q16, Q17

Weighted Decision Map

Weekday



Weekend



Weighted Decision Map for Different Scenarios

Even though there are many relatively stable features in the urban context, e.g. neighborhood median household income, urban systems are always in the center of dynamic flows influenced by time. Here, two scenarios are set to inspect how different time affects vendors' preferable location. To have a strong contrast, one is set on the weekday, the other is set on the weekend. The time difference may become the basis of the flexible space regulation.

The following table shows how we weight the score layers in terms of weekday and weekend. We set 1 weight for the Sidewalk Width Score Layer because the sidewalk width's impact on street vendor location is relatively vague compared to others. While from the policymaker's view, wider sidewalks are recommended for street vendors; empirically, areas with narrow sidewalks often have more commercial features, higher crowd density and thus, more opportunities.

The main difference, however, is Median Household Income Score Layer and City Subway Station Score Layer. On the weekday, the vendor's consumers consist of more local residents, represented through the Median Household Income Score Layer. On the weekend, people entering from outside the neighborhood make up a larger share of the consumer group, which can be expressed through the City Subway Station Score Layer. Therefore, we weigh the Median Household Income Score Layer lower at 1 and the City Subway Station Score Layer at 3 on weekends.

As the two scenarios shown in Figures Q16, Q17, the optimal locations slightly shift from weekdays to weekends. However, both scenarios suggest that areas on Roosevelt Ave near subway stations remain ideal both on weekdays and weekends.

Fig Q18. Indicators used in analysis.

Score Layer	Weekday Weight	Weekend Weight
Land Use	2	2
Median Household Income	2	1
City Subway Station	2	3
Street Vendor Complaints	2	2
Sidewalk Width	1	1

Innovation Toolkit

the innovation toolkit identifies places of opportunity using different scenarios based on socio-economic criteria.

Jackson Heights and Corona have a notable scarcity of open space. According to the Open Space Index from 2010, Jackson Heights has only 0.16 acres of open space per thousand residents, while the New York City standard is 2.5 acres.[12] Community organizations, such as the Jackson Heights Green Alliance and the Project for Public Space, have advocated to revert this situation and provide more open spaces for these neighborhoods.

The city has acknowledged the need for additional open space, and between 2015 and 2017 it invested $11.8 million to intervene in parks and plazas along this portion of Queens. The renovation of Corona Plaza, for instance, resulted in a new shared space that residents were eager to use.[13][14] Similarly, in 2015 the Jackson Heights Green Alliance succeeded in bringing together the Department of Transportation and the Parks Department to intervene at Travers Park, Rory Staunton Field, and 78th St Plaza,[15] which became a unified public space.

However, these projects have not opened more spaces for street vending – a critical need for a group that requires spatial legitimacy to conduct their business. Along Roosevelt Avenue, vendors can be categorized around three main spatial typologies that can be seen in Figure Q19. Their ability to effectively position themselves on the street, offer their goods to clients and obtain revenue depend on their location.

Street vending can be a radically different experience if placed on the sidewalk under the elevated train infrastructure (Figure Q20), which provides limited space due to the close proximity of storefronts and the volume of pedestrian traffic. At subway entrances (Figure Q21), vendors can extend their space and offer a wider variety of services, provided they can

afford the infrastructure to improve their businesses. Here we observed a marked difference between food carts and folding tables and stands, which illustrates the heterogeneity present in these informal markets. Finally, plazas provide the most comfortable space for street vending (Figure Q22), since they can accommodate multiple vendors, incentivize pedestrian interaction, and reduce the amount of regulations on public spaces.

For that reason, we have created a catalogue of pocket spaces of opportunity, defined as remnants of the public infrastructure that serves these neighborhoods that can be repurposed to accommodate street vending. We grouped them into four categories: (i) spaces of pedestrian traffic beneath subway stations' staircases; (ii) extensions of existing public infrastructure; (iii) surface parking lots; and (iv) rooftops of low-rise buildings along Roosevelt avenue. We explored each of these categories as our main proposals for public intervention in our study site.

We mapped these potential interventions along Roosevelt Avenue to illustrate the spatial distribution of the collection of spaces we have identified to be repurposed as a first step to understand how to create a network of new spaces in Jackson Heights and Corona.

Fig. Q19 Vending Typologies along Roosevelt Avenue.

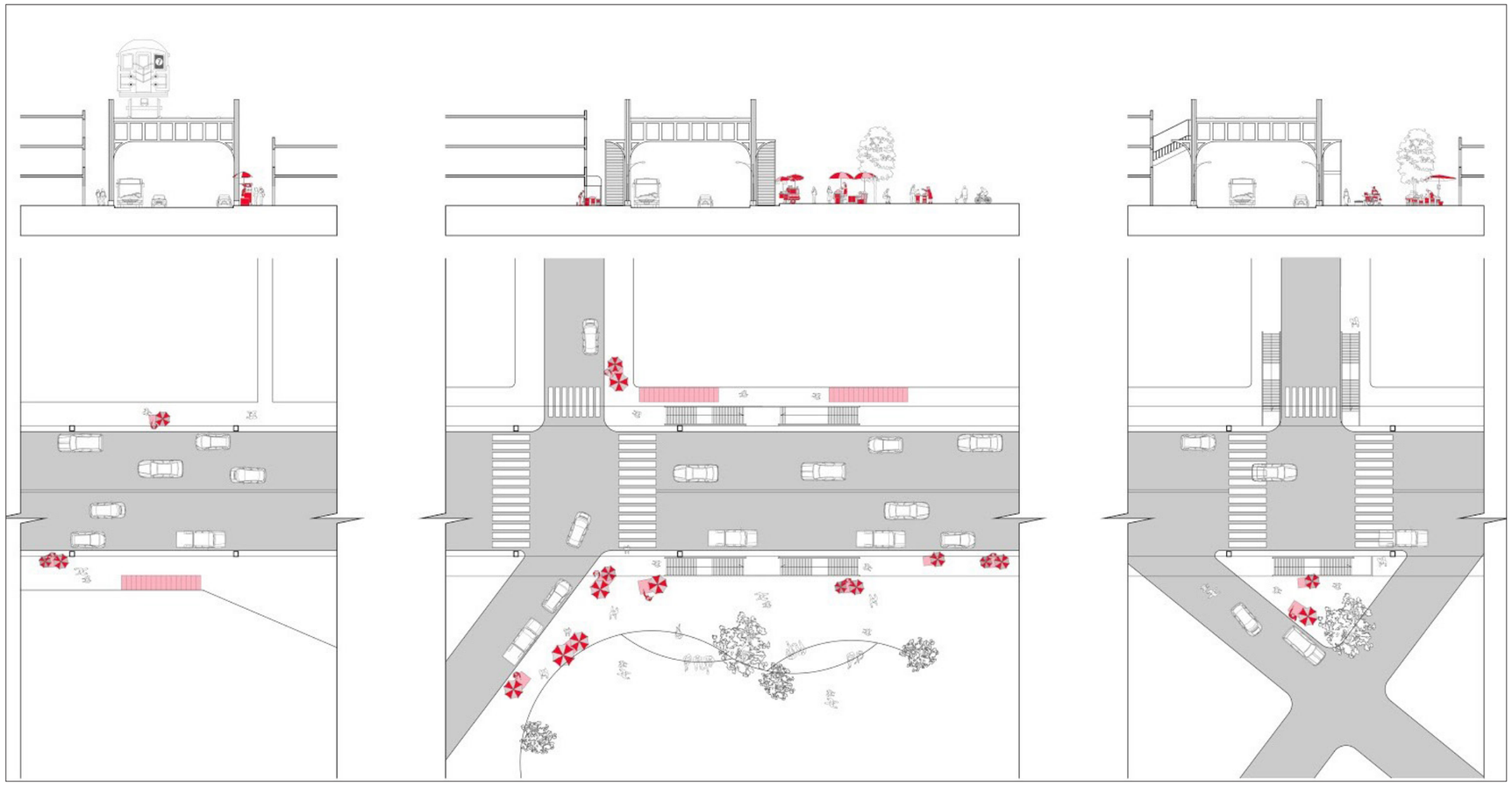


Fig. Q20 Sidewalk Placement

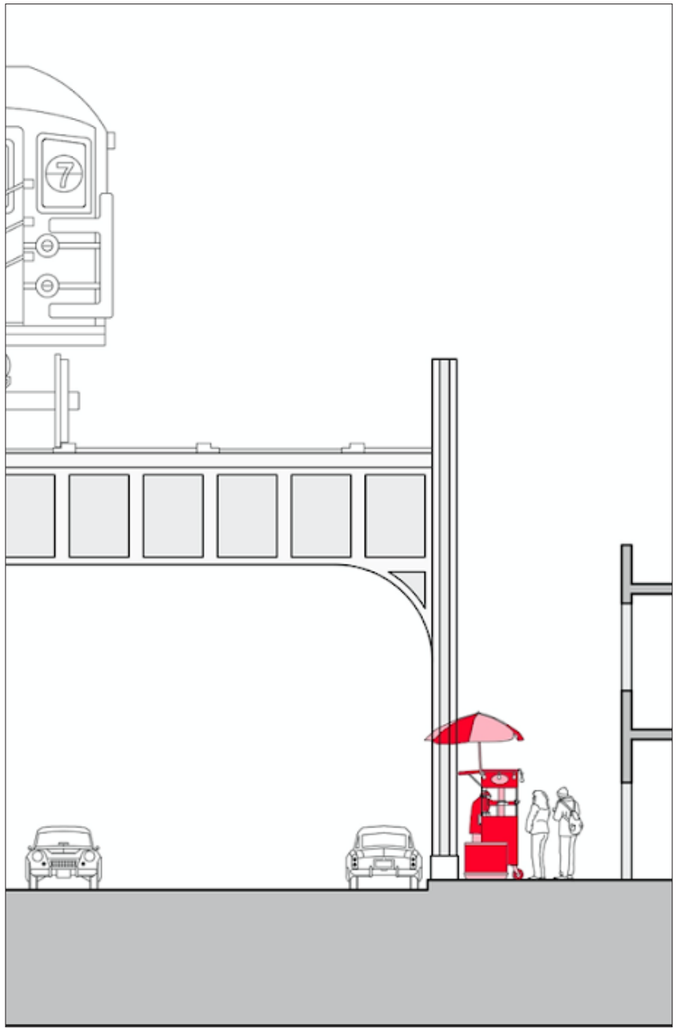


Fig. Q21 Placement on Subway Entrances

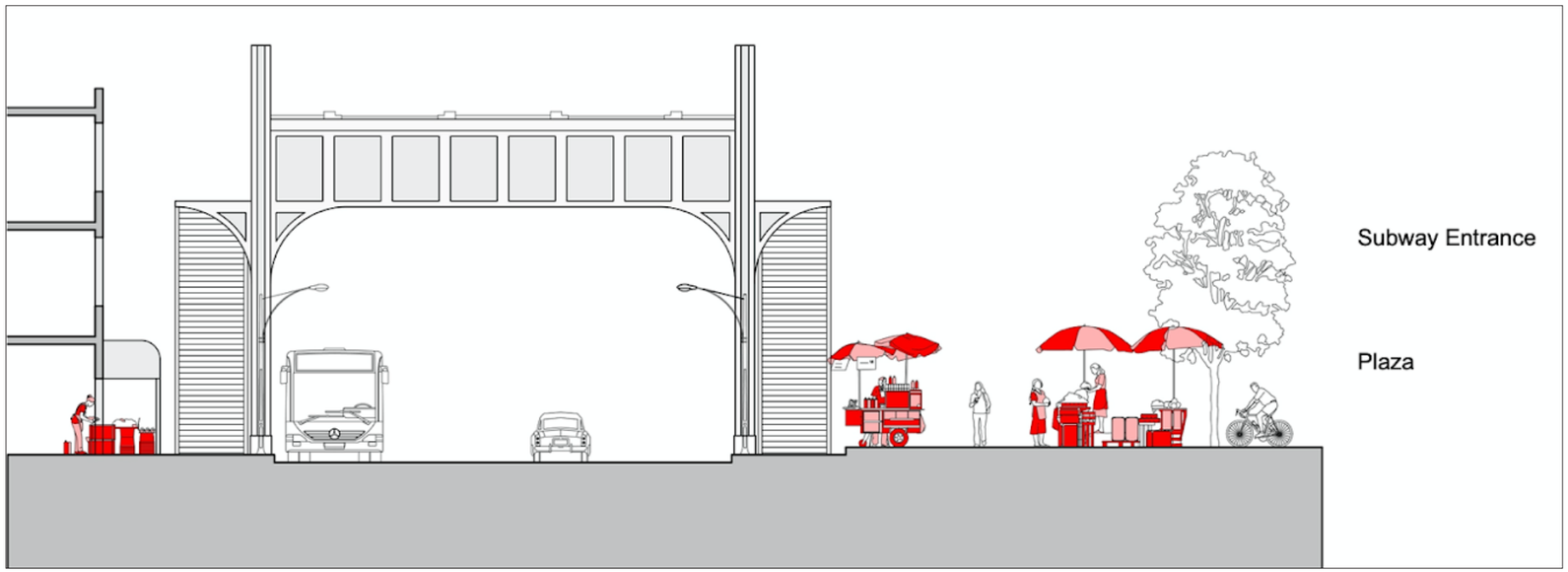
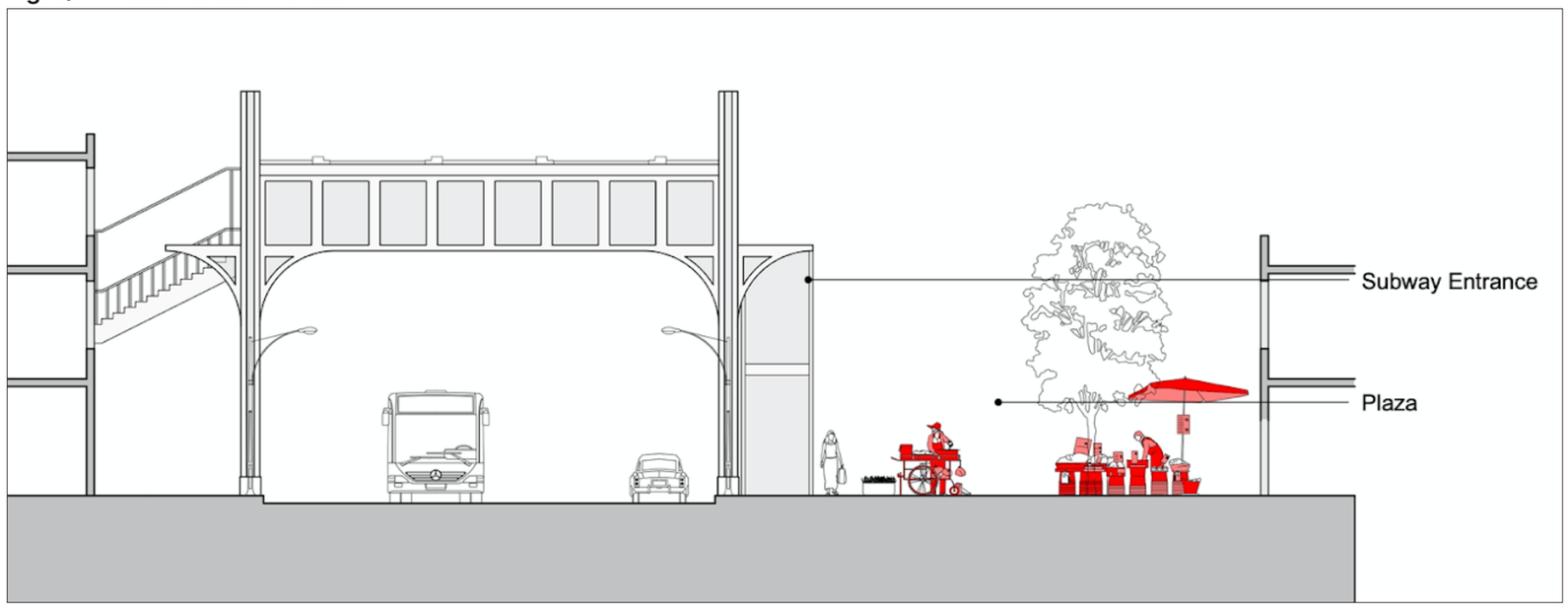


Fig. Q22 Placement on Plazas

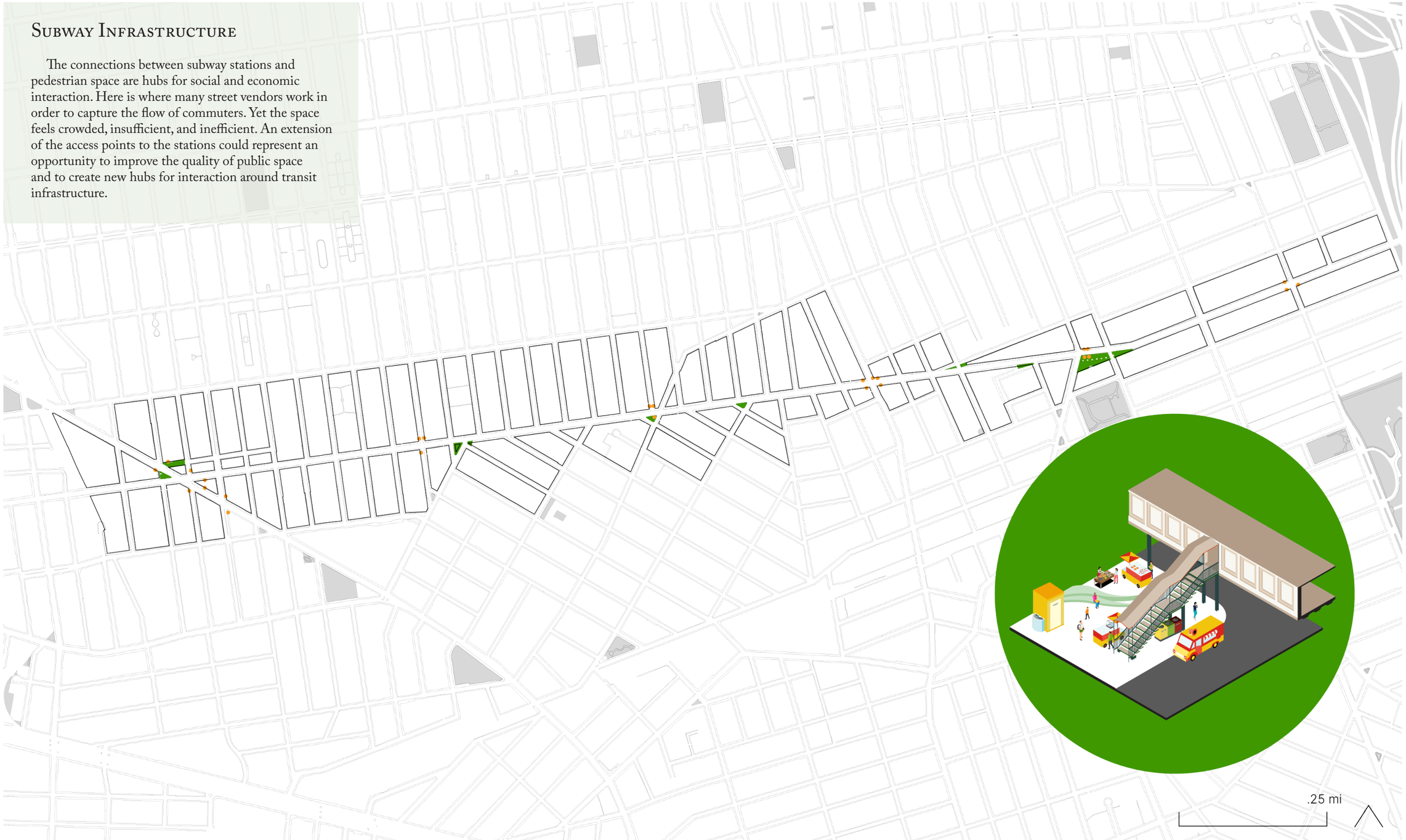


Staircases

The 7 train runs along Roosevelt avenue and has 5 stations in Jackson Heights and Corona, between 72nd and 108th streets. The staircases that descend from these elevated platforms create spots on the sidewalk that are seldom utilized by pedestrians. Some street vendors use this space to conduct their business but, according to our research, this is not a common practice. We want to repurpose this space to offer physical elements that encourage pedestrian traffic and that help street vending: hand-washing stations, connections to electricity, and more permanent installations for informal vendors.

Subway Infrastructure

The connections between subway stations and pedestrian space are hubs for social and economic interaction. Here is where many street vendors work in order to capture the flow of commuters. Yet the space feels crowded, insufficient, and inefficient. An extension of the access points to the stations could represent an opportunity to improve the quality of public space and to create new hubs for interaction around transit infrastructure.

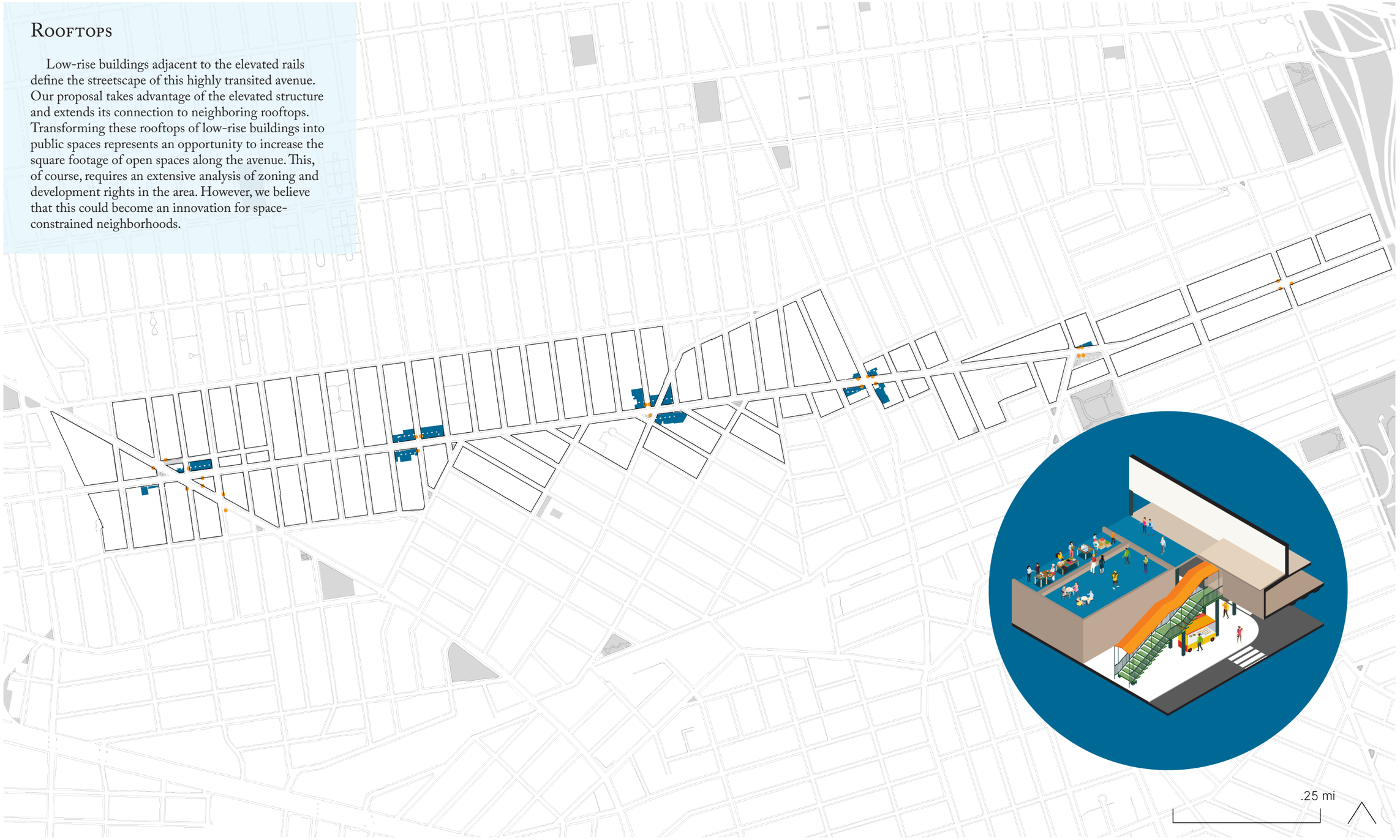


Surface Parking Lots

We also identified seven parking lots, as well as one vacant lot, along Roosevelt Avenue. Depending on their scale, these lots could be converted into food truck parks and facilities that contribute to the maintenance of food carts and the preparation and storage of produce, such as food prep areas, refrigerators, dry storage, and shared kitchens. Repurposing these spaces to assist food vending could enhance the already vibrant food culture of Roosevelt Avenue and facilitate vendors' everyday business. They can also serve as additional open spaces for the neighborhoods.

Rooftops

Low-rise buildings adjacent to the elevated rails define the streetscape of this highly transited avenue. Our proposal takes advantage of the elevated structure and extends its connection to neighboring rooftops. Transforming these rooftops of low-rise buildings into public spaces represents an opportunity to increase the square footage of open spaces along the avenue. This, of course, requires an extensive analysis of zoning and development rights in the area. However, we believe that this could become an innovation for space-constrained neighborhoods.

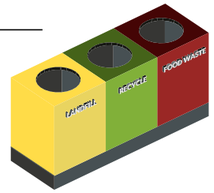


Equipment for Intervention

We want to equip these spaces with additional street furniture suited for street vendors: waste disposal bins, handwashing stands and toilets, and electricity outlets. We also want to intervene in larger spaces to build sites for storage and refrigeration, as well as creating community kitchens where vendors can prep their food for sale in-site and off-site.

These designs are part of a toolkit that we combined with spatial analysis and a regulatory discussion to arm advocates and policymakers to rethink the way street vending is currently conducted in New York. We want to emphasize the role street vendors have for the city, illustrate their conditions, and open a broader debate about the type of open spaces the city has to offer. Street vending, in this scenario, can become a catalyst for economic growth and the reconstruction of social spaces – even with cities dominated by distancing as a new normality.

Waste disposal

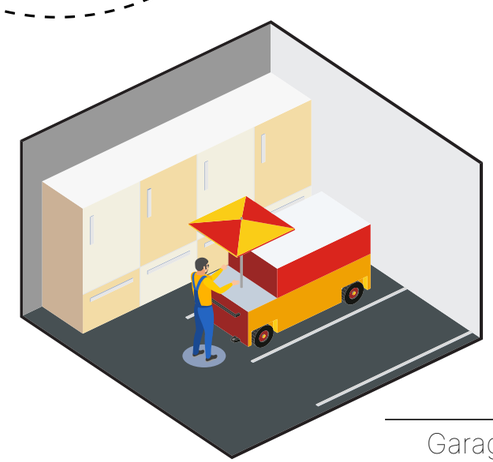


Electricity outlets

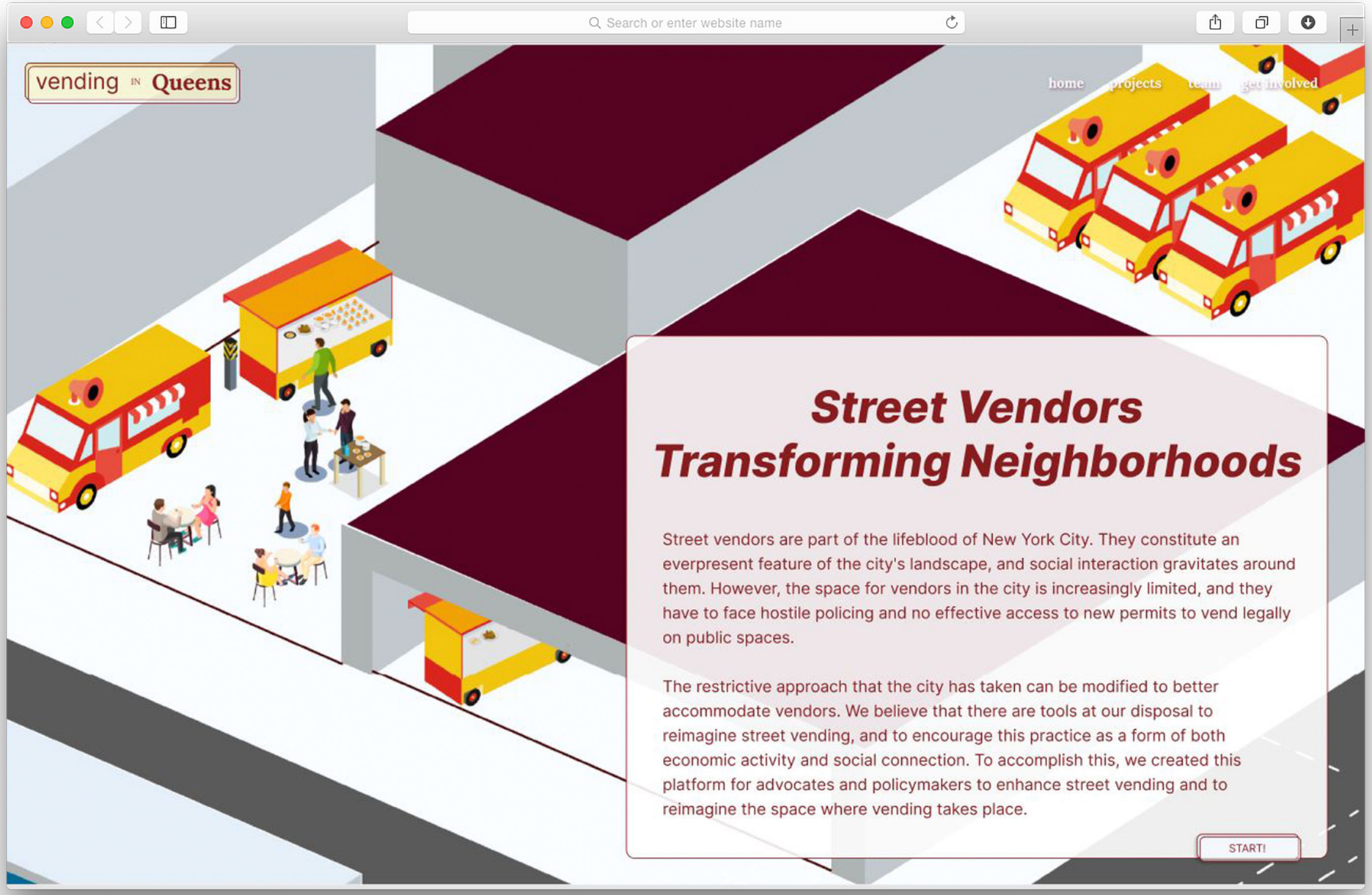
Handwashing stand

Community kitchen

Toilet



Garage and refrigiration

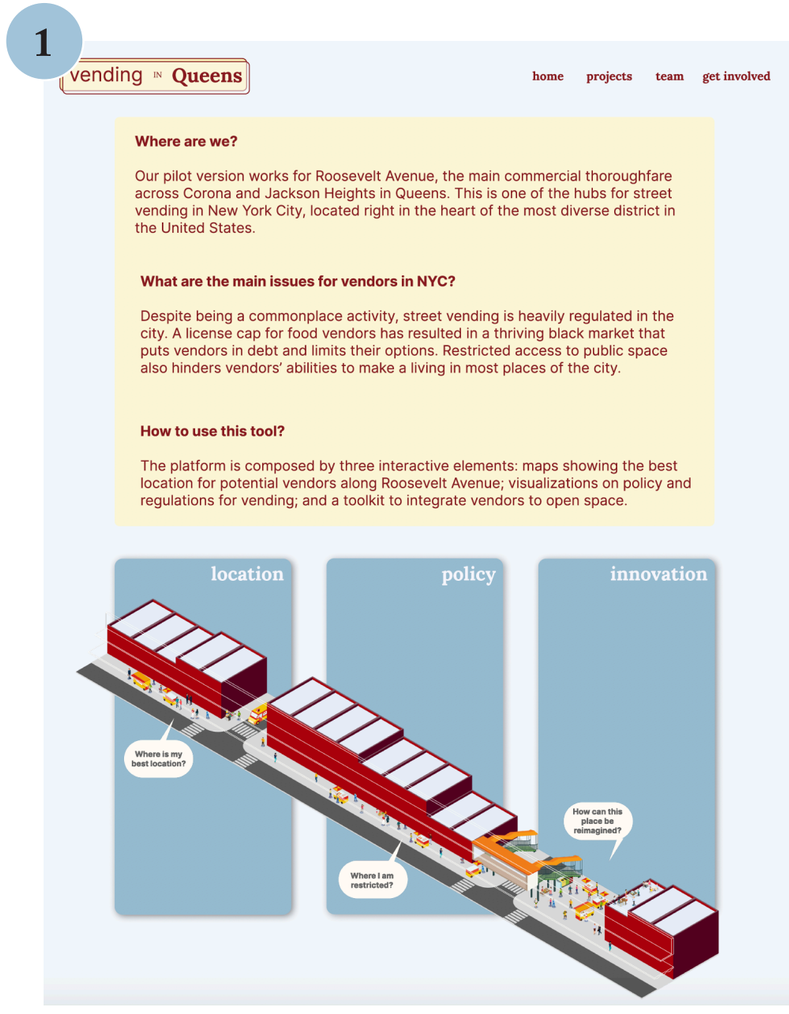

Search or enter website name
vending IN Queens
home
projects
team
get involved
Street Vendors
Transforming Neighborhoods
Street vendors are part of the lifeblood of New York City. They constitute an everpresent feature of the city's landscape, and social interaction gravitates around them. However, the space for vendors in the city is increasingly limited, and they have to face hostile policing and no effective access to new permits to vend legally on public spaces.
The restrictive approach that the city has taken can be modified to better accommodate vendors. We believe that there are tools at our disposal to reimagine street vending, and to encourage this practice as a form of both economic activity and social connection. To accomplish this, we created this platform for advocates and policymakers to enhance street vending and to reimagine the space where vending takes place.
START!

The Platform

Our “Vending in Queens” platform provides a way to answer our key research questions:

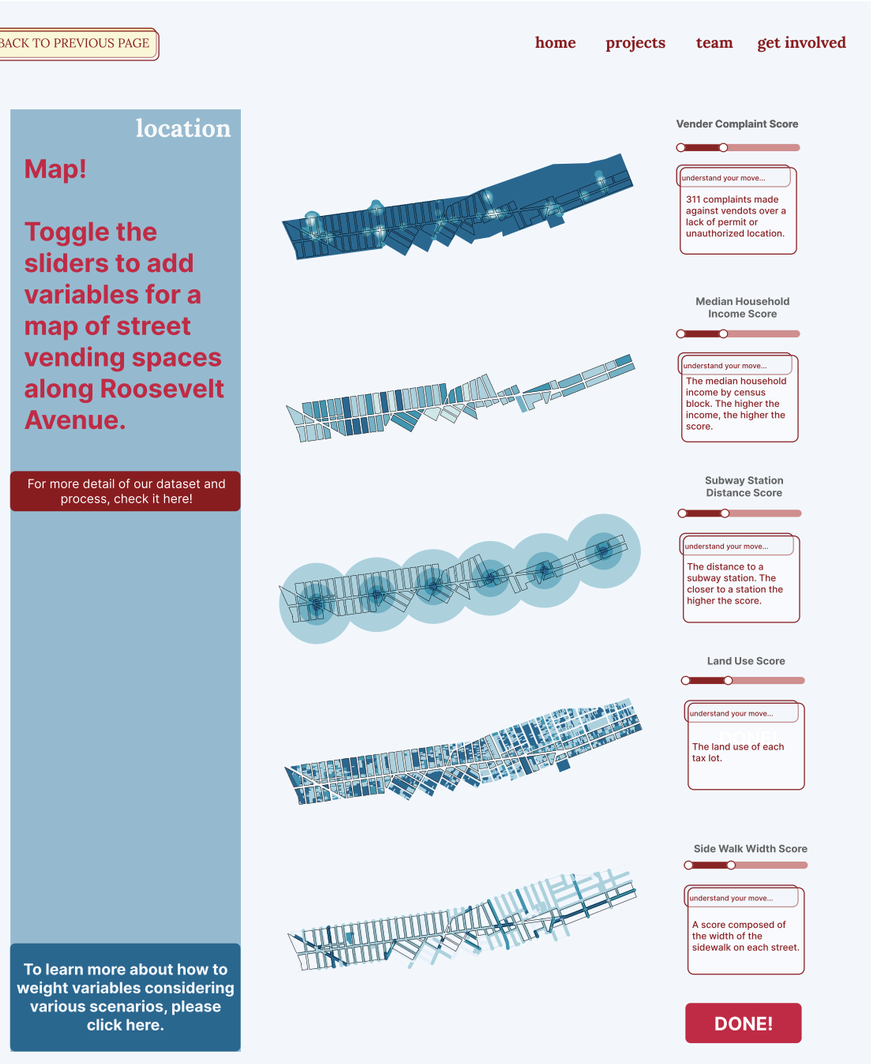
Where would vendors ideally want to be located?
How can current spatial restrictions be changed to give vendors more space?
How can these spaces be reimagined?

Our platform has three main components, location, policy, and innovation. Location identifies prime spots for vendors located along Roosevelt Avenue based on the different weights assigned to five criteria. Policy is a visualization tool that allows for a deeper understanding of the regulations on street vending regarding the vendor’s allowed distance from brick and mortar storefronts as well as distance from the curb. Innovation is a design toolkit for open spaces which contains ideas on how to repurpose existing space to better accommodate street vendors into these neighborhoods.



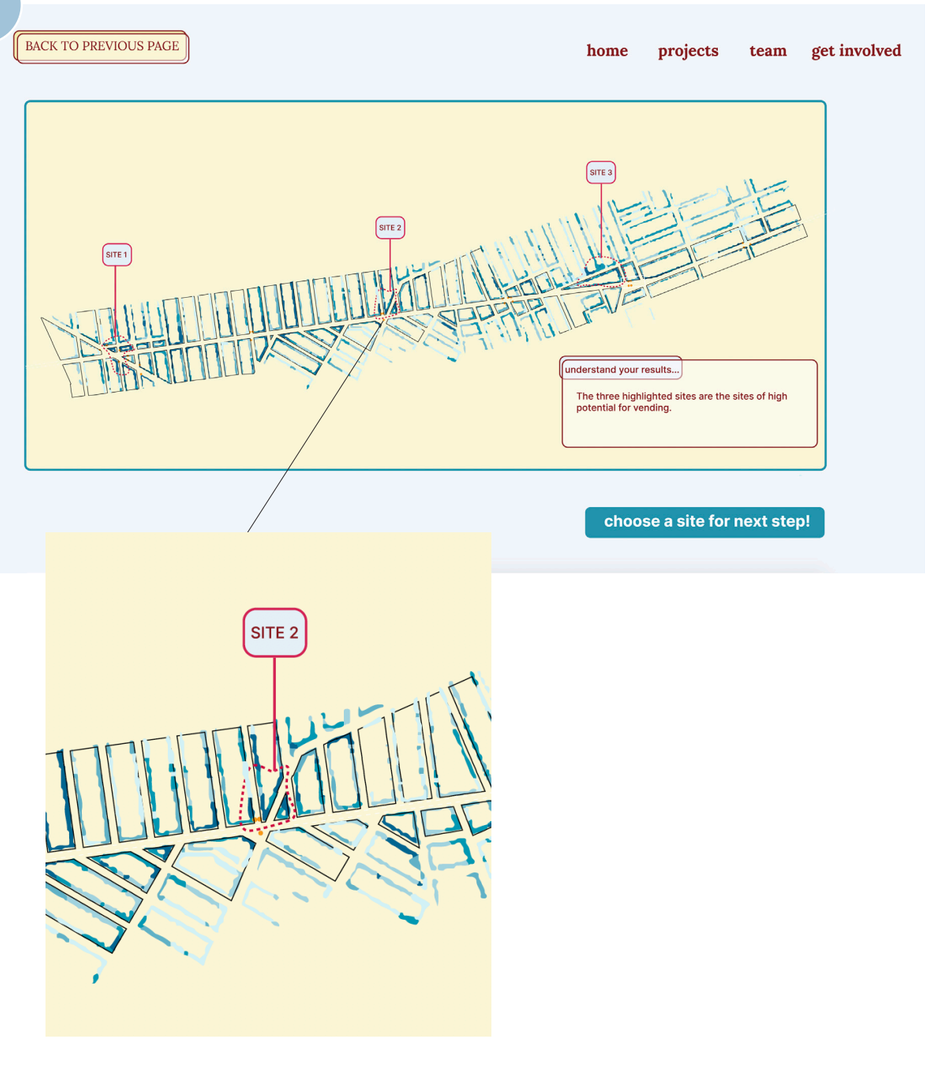
First, five criteria are used to determine the best location for a vendor to locate. Each criteria can be weighted differently. Experimenting with different weights for each criteria will reveal how the optimal location changes.

2



The results show three highlighted sites which are areas of high potential for vending based on the chosen criteria weighting. For this example, the site adjacent to 90th street station is selected.

3



Two main limitations to where vendors can sell are the prohibited radius around doorways and the close distance they are required to maintain along curbs. This reveals how changes to these rules affects the amount of space in which vendors have to sell.

4

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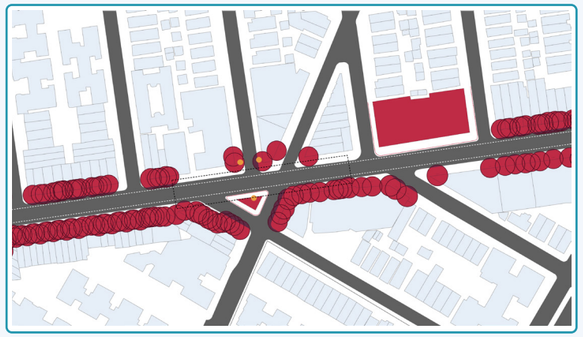
policy

Play!

Move the sliders to see how NYC restrictions on street vendor affect available spaces to vend.



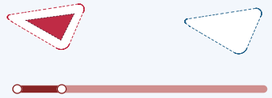
SITE 2: Current Restrictions on Vendors

Radius Modification

understand your move...

Reducing the restrictive radius around doorways gives vendors more space to vend.

Curb limitation in open spaces



understand your move...

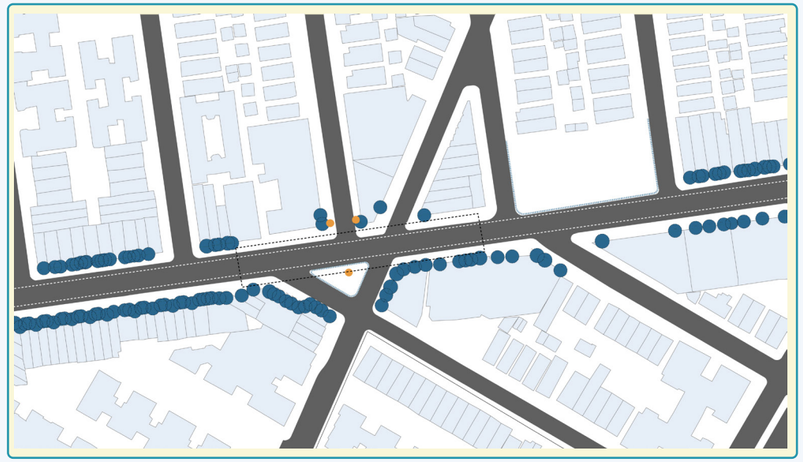
Allowing vendors to sell further from the curb gives them more flexibility on choosing a location that's right for them.

For more details on policy, check it here!

DONE!

The results show newly available vending spaces given the relaxed restrictions showing.

5



back to main page

learn about optimal location

ready to innovate!

The results show how less restricted square footage increases the amount of sidewalk space available for vending.

6

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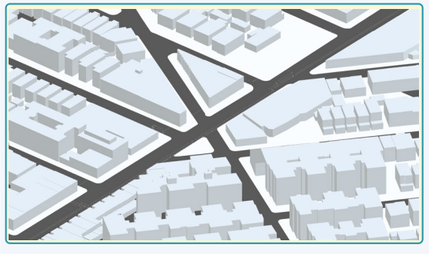
Innovation

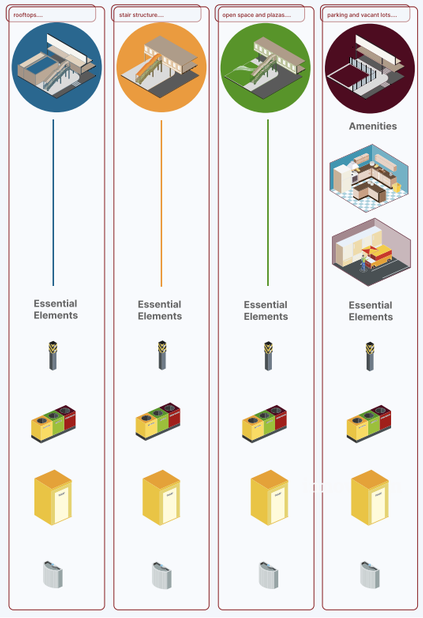
Reimagine!

Queens is full with spaces of opportunity that can be adapted for street vending.

Select the type of space and the elements you would like to include.



Space Typology



For more details on vendors' needs, check it here!

The results give us a visual for what the combination of selected spaces and elements could look like.

7

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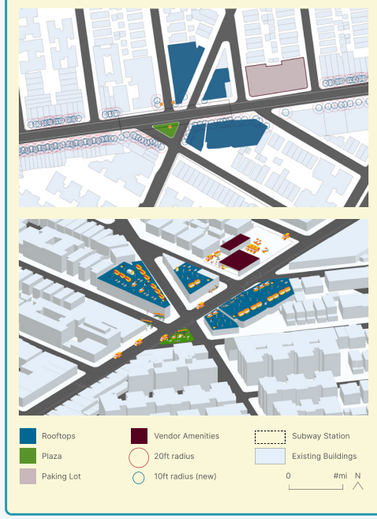
You did it!

Here are some details on policy changes required to create this space and to enable it for street vending.



understand your results...

You have created new # sq ft of additional space for street vending:

Location:
90 St - Roosevelt Av - Elmhurst Av

When:
Weekdays

Policy Modifications:
- Radius reduced to 50% (10ft)
- Removal of 18in curb constrain in open spaces

Innovations:
- Rooftops converted into public spaces
- Surface parking lot converted into Food Cart Hub with storage and facilities for vendors
- Plaza facilitated as a Vendors Hub
- Subway stairs repurposed to accommodate restrooms, washing stations, waste disposals, and electricity outlets.

PRINT!

Here we are given a summary of all our selections for each component and the implications for street vending in that location.

The results give you a 2D layout or a Plan view of the site selected with the policy changes made along with the spaces that are available for innovation. In this example, innovations include:
1. Transforming rooftops into public spaces
2. Repurposing parking lots to include storage and facilities for vendors
3. Intervening near existing subway stairs and small plazas with restrooms, washing stations, waste disposals, and electrical outlets

We want this digital platform to inform advocates and policymakers and reimagine where vending takes place so that vendors are better positioned to be part of the conversation about the future of their neighborhood.

8

Footnotes

1 Wheeler, "The Sidewalk & the Storefront." 2019
2 Kasinitz, "Chapter 8: Jackson Heights, New York." 1998, 161-77.
3 "Live XYZ." Live XYZ. Accessed April 16, 2020.
4 "What Mobile Food Vendors Should Know." New York City Department of Health and Mental Hygiene, 2017.
5 "What Mobile Food Vendors Should Know." New York City Department of Health and Mental Hygiene, 2017.
6 New York City Department of City Planning. 2020. MapPLUTO™ Release 20v2 [shapefile].
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12 New Yorkers for Parks, "Open Space Index 2010: Jackson Heights."
13 Matua, Angela. 2017.
14 Queens Gazette. 2012.
15 Jackson Heights Green Alliance. 2019.

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Closing Remarks

As we transition to an online world as a consequence of the pandemic, we have acquired first-hand experience in the limitations of digital engagement. A general feeling of disconnection hangs over our everyday lives. Public space seems all but inaccessible, social interaction is to be avoided, and streets in cities such as Buenos Aires and New York feel devoid of life.

This sense of disconnection is greatly exacerbated by informality. The outcomes of the pandemic are still undetermined for cities, but for the urban poor the situation is dire. It does not matter if they live in an informal settlement in Buenos Aires or if they are still trying to make a living in the streets of New York. The closing of cities and the withdrawal from public space deprive these communities from their sources of livelihood.

But the people who live in these communities – migrants, vendors, hawkers – still have agency on their surroundings. They keep striving every day to make ends meet, risking their lives working "essential jobs" and, critically, they still depend on local support network to support themselves. In that sense, the division between the formal and the informal has acquired a new facet, with informal residents needing robust social networks perhaps more than ever in the past century.

This dichotomy between the formal and the informal is a relevant issue for our proposals as well. Our limitations are manifold: we have conducted virtual research for issues that can only be understood in depth with direct and close contact; we are positioned members of an academic institution of the global North, which severely conditions our approach; as planners, we seem to be de facto advocates for formal forces, and the core of this document can be read as a regularizing attempt to a ways of life that have been hindered by multiple forms of regulation.

But, at the same time, we strived to create tools instead of producing normative measure or policy recommendations. We recognized tremendous potential in self-organization, advocacy and community participation. After all, the communities we studied have been able to build a life as a result of these kind of approaches. We wanted to foster what the Spanish language calls autogestión, a political stance for the urban poor that is centered in self-managed communal achievements. We saw this in the plants that give life to the narrow streets of Barrio 31 and drew inspiration from it; we also witnessed the drive of vendors in Queens and their desire to be recognized as legitimate workers, and tried to honor their efforts.

The closedness that now seems to pervade the built environment can be a terribly regressive force. By studying urban informality, we aimed to highlight the open and democratic qualities of cities - while still recognizing the radical inequality that produces uneven forms of urbanization all around the world. By creating virtual tools to assist informal settlements, we wanted to arm these communities with elements they can utilize to rebuild when cities are open again, and they reclaim the streets once more.

Reimagining Informality through Public Space in Buenos Aires & Informal Vending in New York City

UP Studio | Spring 2020 | Columbia GSAPP

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