EMPOWERING PUBLIC PROPERTY

Simulating New Housing, Economic Development and Greenspace Policy with Newark's City-Owned Property Inventory

BY ELANA SIMON AND DAVID D. TROUTT,
RUTGERS CENTER ON LAW, INEQUALITY AND METROPOLITAN EQUITY

RUTGERS CLiME
Center on Law, Inequality and Metropolitan Equity

FEBRUARY 2024

Table of Contents

Executive Summary

This is a report about how cities can better organize and manage their data about the property they own in order to promote transparency and advance critical policymaking. Newark, like many legacy cities, owns hundreds of parcels through tax foreclosure and abandonment that can be put to more productive use and even generate needed revenue. Because of different inputs from different departments, its property data system contained duplication and gaps that prevented policymakers and stakeholders from getting a clear picture of these public assets. In partnership with city staff, CLiME helped to resolve the data organization problem and set property management on a new, more accurate and user-friendly course. Along the way, we learned details about the nature and amount of city-owned properties, how they're zoned and where they're located. We concluded that much more of this significant inventory can and should be put to work advancing long-held goals of equitable development. We built three demonstrations to simulate this usage that cover three major areas of policy: affordable housing production, commercial and industrial development and green space/environmental risk mitigation. Each of these is an area in which the Baraka administration is already active in setting aggressive policies. Some of those policies already make use of the asset of city-owned land. Until recently, it was impossible to see the scope of particular uses because the data did not readily permit it. Now the data is cleaner and clearer.

As a result, we broadly make the following recommendations. Note, the calculations of Newark properties below are based as of June 2023; the City has been actively engaged in policy initiatives to use its inventory, so exact numbers may have changed.

1) Maximize the use of city-owned land as a public resource for affordable housing. Facilitate the sale of lots across the City's wards through a variety of rental and homeownership vehicles.

2) Use thousands of square feet of mixed-use ground-level commercial space to offer below-market rents to underrepresented businesses, such as health clinics, food stores and daycare in the neighborhoods where they're needed.

3) Use thousands of square feet of property zoned for light industrial to subsidize the continued growth of Newark's manufacturing and small business development and create hundreds of jobs for Newarkers.

4) Transform nearly 300 undersized and un-developable lots to create new green spaces, capture rainwater, reduce urban heat island effects and help create healthier air in Newark's neighborhoods – all on land the city already owns.

5) Create the governance and financing vehicles necessary for each of these policy areas.

- In housing, consider the creation of community land trust ownership of properties and/or shared-equity

cooperatives in addition to units owned by individuals, non-profits and private developers.

- In commercial development, consider creating a quasi-public redevelopment authority with responsibility for leasing, selling and ensuring compliance with use regulations associated with discounted city-owned commercial property.
- In green space, consider creating or partnering with organizations that have dedicated expertise in environmental risk reduction, public space maximization and public health and safety.

6) Use the City's substantial leverage and the significant value of its land to develop innovative financing relationships with the state, community development financial institutions, banks and other lenders in order to build funds for operation, development, training and management.

7) Democratize priorities for city-owned land use. Land owned by the city is land owned by the public. We strongly recommend that cities like Newark develop formal mechanisms for public engagement and planning in the disposition of public land. Decisions are often permanent.

Part 1 – Data Analysis of Newark's City-Owned Property Inventory

CLiME partnered with the Department of Economic and Housing Development (EHD) at the City of Newark over the course of six months to produce an accurate and up-to-date dataset of city-owned property. At the time, multiple data management protocols made an accurate accounting difficult. CLiME and EHD's partnership produced tools and techniques that allow for the efficient and creative use of city-owned land as a resource for equitable development. The inventory database will

- facilitate transparency about city-owned land available for redevelopment;
- allow the City to implement and evaluate its policy agendas premised on the use of city-owned land; and
- open new opportunities for applied policy research.

Categories and Available City-Owned Property

Among all property held by the City of Newark, 1,263 property records or about three-fourths of all city-owned property do not have a municipal use (see **Table 1**).[1] Only a portion of city-owned property without a municipal use is ***available*** because some of these parcels are in the disposition process or have an interim use managed by the city such as the Adopt-A-Lot program. [2] There are 895 property records without a municipal use that are available for redevelopment. For the purposes of this report, only **available city-owned property without a municipal use** is considered for some productive use.

[1] The accounting of the inventory reflects data collected March 2023.
[2] "Available inventory" excludes property in the disposition process (i.e., received a Preliminary Designation Letter from the City or received City Council approval for transfer) and property with an interim use managed by the City (i.e., city initiative, adopt-a-lot program or under a year-long Use & Occupancy Agreement).

Table 1

Property Records by Inventory Category - City-Wide				
Inventory Status Category	**Full Inventory**		**Available Inventory (Excluding Property in Disposition Process or with Interim Use)**	
	Count	**Percent**	**Count**	**Percent**
Inventory - No Municipal Use	1,263	75.3%	895	69.0%
Municipal Use	307	18.3%	296	22.8%
Municipal Use - NYPA Lease	51	3.0%	51	3.9%
Unknown	56	4.2%	53	4.1%
Total	**1,677**		**1,295**	

Various types of property make up the broader category of city-owned land without a municipal use. The most prevalent form of available property are vacant lots, representing 497 property records or nearly 60 percent of the available inventory without a municipal use. Following vacant lots, undersized lots and residential property are among the most prevalent forms of property, amounting to 20 percent and 7 percent of the inventory, respectively. Commercial and industrial properties comprise 4 percent and 2 percent of the inventory, respectively.

Transfers of vacant city-owned property to private entity typically follow one of three disposition pipelines: redevelopment agreements by way of Property Management Division review and City Council Approval; a response to a Requests for Qualification (RFQ); or a public auction. RFQs are announced for specific city initiatives and establish criteria by which the relevant department can review proposals. Public auctions convey land to the highest qualified bidder, regardless of the intended use. The City has not held a public auction since 2020.

Part 2 – Simulating Equitable Uses of City-Owned Land

After working with the City to streamline property data management, we asked the policy question: How can the redevelopment of city-owned land advance goals of housing affordability, equitable economic development, and climate resiliency? In the remainder of the report, we run three policy simulations to illustrate the possibilities and limitations of redevelopment with public assets. We limit the universe of land to property in standard zoning districts outside of redevelopment areas as per the City's proposed 2023 zoning ordinance. Additionally, the universe is limited to property without a municipal use that is available for conveyance (i.e., property without an interim use managed by the City or in the disposition pipeline).

The policy simulations seek to estimate maximum intensive uses on city-owned land for affordable housing development; below-market commercial space for consumer amenities and for

supporting economic development; and green infrastructure to support climate resiliency. Simulations based on parcel size and an approximation of development rights illustrate the potential scope and location of redevelopment on city-owned land. Detailed feasibility studies are required to determine the viability of redevelopment. Further, civic engagement and democratic processes should guide redevelopment planning, which may justifiably modify the parameters of maximum intensive use set by the simulation. Based on inventory calculations as of June 2023, the simulations illustrate:

- **2,568 affordable housing units;**
- **102 below-market commercial suites in mixed-use buildings that provide essential consumer amenities that support the social determinants of health;**
- **About 4 million square feet of below-market light industrial building space that can accommodate 666 advanced manufacturing businesses and 137 creative and technology firms;**
- **Nearly 300 green infrastructure sites on non-buildable lots and more than 400 green roofs on existing municipal buildings and proposed affordable housing and commercial sites.**

Simulation 1:
Facilitate Development of 2,500 Units of Affordable Housing

The first housing simulation shows that using available city-owned property for affordable housing production could produce an estimated 2,568 units of affordable housing in standard zoning districts that permit residential uses.[3]

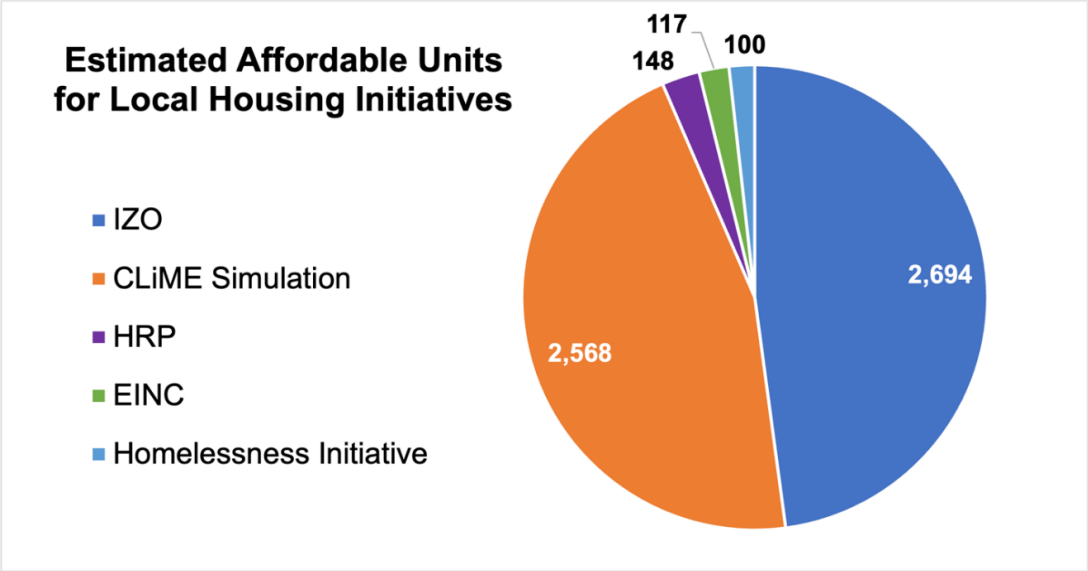
Table 2

Simulated Housing Production on Public Land by Ward		
Ward	**Affordable Housing Units**	**Affordable Housing Units Share**
South	1,172	45.6%
West	659	27.7%
Central	434	18.2%
East	187	7.9%
North	116	4.9%
City-Wide	**2,568**	**100%**

[3] The simulation only analyzes the potential for affordable housing production in standard zoning districts that permit residential uses. There is greater potential to produce additional affordable housing units in redevelopment areas that are outside of the scope of the simulation.

Joining with other affordable housing initiatives by the City of Newark, the use of available city-owned property for affordable housing development can help the City meet its production goals.

Figure 1



There is also an opportunity to create and sustain a bridge fund for affordable housing development that targets projects in Newark. The following illustrates possible financing sources for development of affordable housing units on city-owned land.

Table 3

Capital	Sources	Terms
Senior Debt (65%)	• Commercial Banks with CRA obligations • NJHMFA Tax-Exempt Bond • CDFI Loan Funds • CDFI Credit Unions	Provides loan up to 65% of the value of the project (65% Loan-to-Value) Interest rate 4% - 8% (varies with market conditions)
Subordinate Debt (15%)	• NJRDA Urban Site Acquisition Fund for predevelopment costs • Place-Based Affordable Housing Bridge Fund	Provides loan 100% to 120% of the value of the project Low-cost loan with amenable interest rates (1% - 5%)
Equity (20%)	• Public Grants • Philanthropy • Corporate contributions	

Simulation 2:
Use commercially and industrially zoned land to fuel equitable development

We explore how affordable commercial space can advance equitable economic development in Newark by identifying city-owned lots in zoning districts that permit commercial and industrial uses. The first set of properties we highlight consist of first-floor commercial space within mixed-use buildings. We identified 40 suitable parcels. Situated in mixed-use zoning and community commercial zoning districts, these parcels are close to residential areas and collocated with dense clusters of simulated affordable housing sites.

The second set of properties we examined are located in industrial and large-scale commercial (C-3) zoning districts. These lots are located farther away from residential centers of the city and zoned for light industrial and commercial uses. We propose that these lots are used as light industrial space to support Newark's advanced manufacturing renaissance, a strategic economic sector that is uniquely positioned to support equitable development in Newark through local business ownership, living income jobs, and economic innovation.

Our simulation proposes using either mixed-use street-level space or industrial space to advance affordable commercial and economic development for health care, food access, daycare, general consumer retail and manufacturing uses.

Health-oriented uses:

Commercial spaces in mixed-use neighborhoods can provide healthcare and essential consumer amenities that affect the social determinants of health.

If these spaces are split into small- and medium-sized suites for a range of health-oriented and community uses, these 40 sites could accommodate about 100 health-oriented tenants if floor area is split into a mix of small suites (1,000 to 1,500 square feet) and medium suites (ranging from 2,200 to 3,600 square feet). Creating affordable commercial space for health-oriented uses creates opportunities for local entrepreneurship and community development.

Food and consumer retail uses:

The 2,500 proposed affordable housing sites from the first simulation are located in neighborhoods that exhibit dire levels of social vulnerability according to the CDC's Social Vulnerability Index.[4] Grocery stores with fresh food, daycare centers, and other general

[4] The CDC Social Vulnerability Index reflects population and housing characteristics that indicate social vulnerability, including socioeconomic status (high poverty, high unemployment, low income, no high school diploma); household characteristics (age 65 and older, age 17 or younger, disability, single-parent households); minority status and language (minority, speaks English "less than well"), and housing type/transportation (multi-unit structures, mobile homes, crowding, no vehicle, group quarters). (CDC, 2020).

consumer goods are in short supply in neighborhoods with high concentrations of vacant property.

Light industrial and manufacturing uses:

Developing light industrial space with below-market rent to support advanced manufacturing can help drive equitable economic development in Newark. Using available industrial-zoned city-owned land to create affordable industrial space for multisectoral clusters of production, research, and design businesses could potentially support 800 growing businesses.

Nine industrially-zoned city-owned sites provide an opportunity to create nearly 4.2 million square feet of building space in six- to eight-story modern light industrial buildings.[5]

Based on the hypothetical allocation of uses in the simulation described above, the simulation shows that potential development on available sites could accommodate about 660 tenants in light industrial space and about 140 tenants in office space. If 70 percent of all usable industrial and office space is leased and rents are priced between $10 per square foot and $20 per square foot,[6] revenue could range between about $20.8 million to $41.7 million.

Simulation 3:
Transform abandoned spaces into green tools for climate resiliency and placemaking

About 300 potential green infrastructure sites can create new green spaces, capture rainwater, and help create healthier air in Newark's neighborhoods – all on land the city already owns.[7] Collectively the potential sites cover 17.12 acres of land. These parcels are small in size

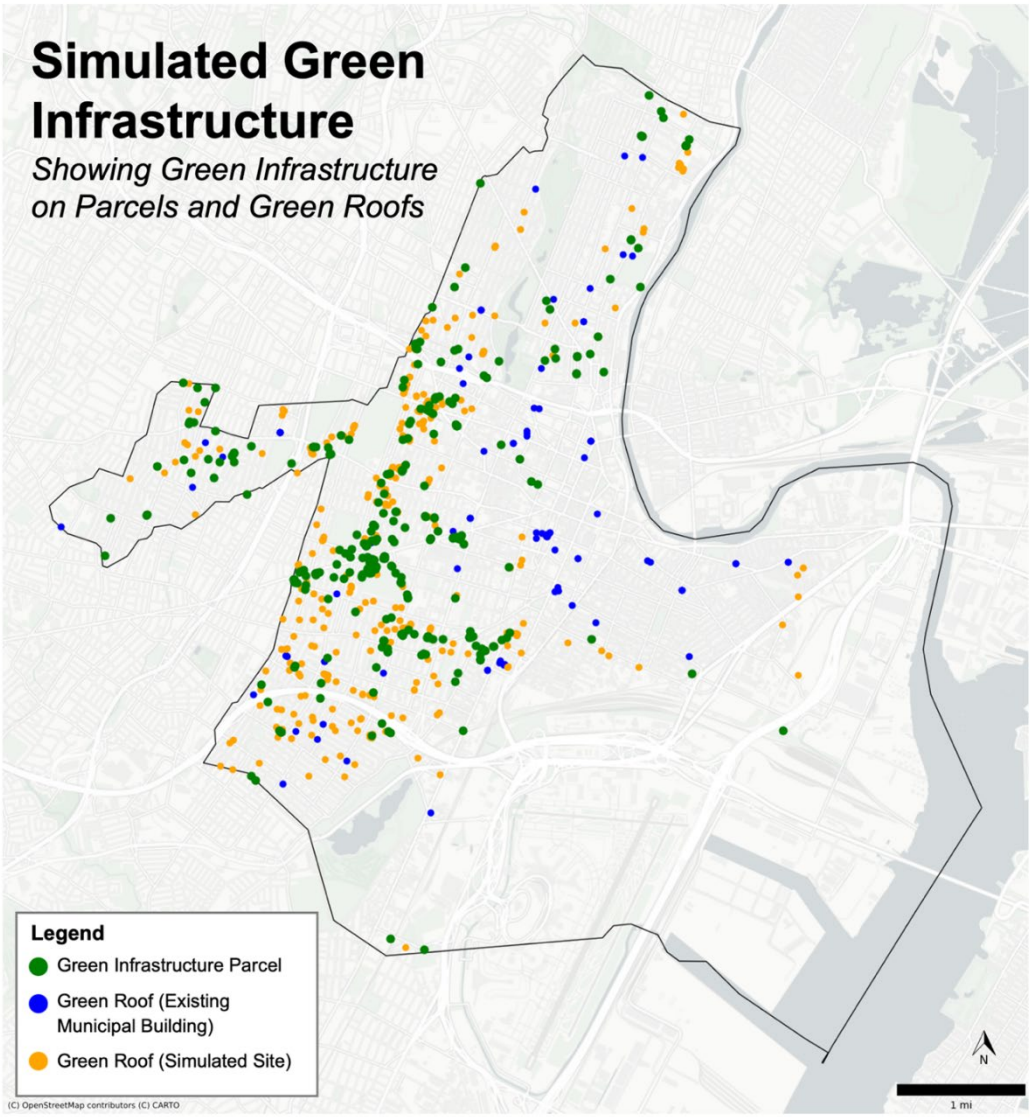
[5] There are 14 parcels that make up 9 sites in industrial zoning districts under the proposed 2023 zoning ordinance. Six contiguous lots were merged for the purpose of simulating development potential. The simulation assumes that sites will be developed to the maximum permitted density (6 or 8 stories depending on the zoning district). We also assume that 70 percent of land area will be used for the building, which is less than the permitted building footprint area of 85 percent of land area in light of requirements for parking and loading docks for trucks. Notably, 3 out of 16 of the selected sites are on the NJDEP Known Contaminated Site list and would require significant environmental remediation to activate as viable commercial use (NJDEP, 2023). See **Appendix A** for a full discussion of the simulation methodology.

[6] There is not a well-established formula for "affordable" commercial rent. Below market-rate commercial rent is relative to market rate rents and the greater the difference, the greater the subsidy given to the business. We present a range here that is between 23 percent to 62 percent lower than market rate. In 2023 industrial rents in Newark ranged from about $19.50 per square foot to $26 per square foot, which is among the most expensive industrial rents in New Jersey (CBRE, 2023).

[7] Potential sites for the green infrastructure simulation include vacant or undersized lots with a parcel area of at least 500 square feet.

with a median land area of 2,200 square feet. Most are concentrated in the South, Central, and West Wards -- only five potential sites are located in the East Ward, the most flood-prone area of Newark.

Figure 2



There are 95 municipal buildings city-wide where green roofs can potentially be installed. Further, the first and second simulations on affordable housing and commercial development demonstrate the possibility of building 329 structures on city-owned lots.

Advancing Climate Resiliency, Health, and Placemaking

Newark's built environment and wastewater infrastructure exposes communities to multiple environmental hazards that are only further magnified by the impact of climate change. Impervious

buildings and surfaces dominate the urban landscape with patches of trees concentrated in select parks, trapping heat and expelling floodwater by design. Newark ranks second in the nation for urban heat island intensity.

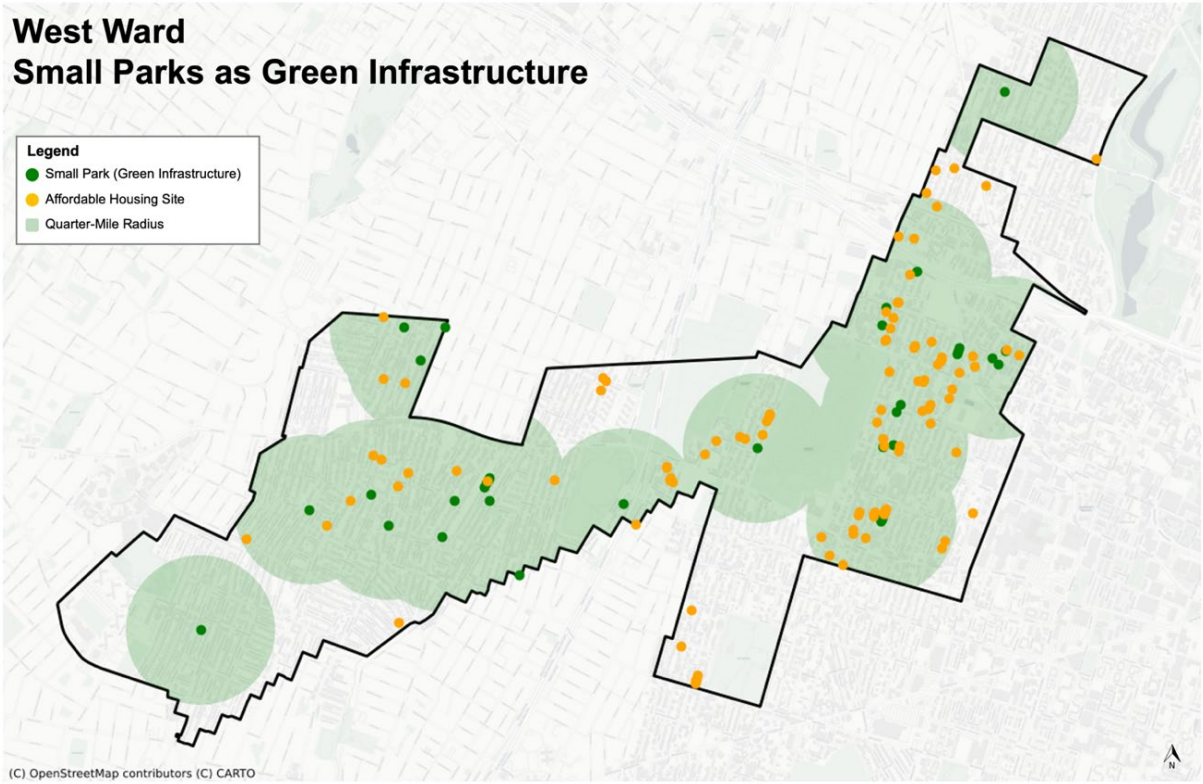
But Newark has mitigation options. For example, the Ironbound, Newark's densest neighborhood, can benefit from 32 potential green infrastructure sites that could help addresses flooding and the urban heat island effect.

Table 4

East Ward Potential Green Infrastructure Sites	
Site Type	**Count**
Non-Buildable City-Owned Parcel	5
Existing Municipal Building *(Green Roof)*	9
Simulated Affordable Housing *(Green Roof)*	13
Simulated Commercial Development *(Green Roof)*	5
Total Potential GI Sites	**32**

In the West Ward, 35 sites available for small parks could create 1.6 acres of green space.

Figure 3



And creating a more prominent role for community planning in green infrastructure development can help Newark neighborhoods reap the multifunctional social and economic benefits of green infrastructure.

Financing Green Infrastructure Development

Newark should look to various sources of federal, state, and private funding to finance the need for extensive green infrastructure development in the city. The U.S. EPA's 319 Nonpoint Source Program provides grants to states to address pollution from stormwater runoff. Additionally, the agency's Urban Waters Small Grants Program (UWSG) provides grant funding for programs that improve urban water quality while promoting neighborhood revitalization (Georgetown Climate Center, 2023).

Financing and governance questions

All three simulations raise governance, public management and financing questions that need to be addressed. For instance, who will own and manage affordable housing—the city, nonprofits, private developers, tenants? What public or private entity will be responsible for managing the leasing or disposition of commercial properties? Similarly, what constellation of actors controls and maintains green space functions dedicated from public land? And what role does the public play in all of these questions? And what about financing? The use of city-owned land promises dramatically lower property acquisition costs—a significant barrier to many community benefits. But then what? Financing an industrial project that provides below-market rent requires a stack of tax credits, grants, and philanthropic support to make the project financially viable. The report discusses some possible approaches.

Introduction

The strategic redevelopment of city-owned land in Newark holds immense promise for advancing policies of housing affordability in hand with placemaking, climate resiliency, and equitable development. Land that has come into the possession of the City of Newark due to tax delinquency, foreclosure, or landlord abandonment reflects a living legacy of structural inequality. This report reimagines public use by chronicling the opportunities for equitable growth and household mobility that might arise from a clearer view of Newark's current inventory.

City-owned property is a public asset that can be strategically leveraged as a policy tool to address Newark's immense unmet needs for affordable housing, equitable economic development, and climate resiliency. Newark faces an acute shortage of affordable housing. While multiple approaches are needed to fill the gap, the acquisition of city-owned land at a nominal fee is a critical resource for affordable housing development in Newark. Any plan that seeks to address the housing crisis must leverage a deep layer of subsidies to produce units that are affordable at the local level. However, supporting the development of healthy, livable neighborhoods requires more than brick-and-mortar affordable housing production. In hand with affordable housing development, Newark needs quality jobs and business ownership opportunities to advance the financial security of residents. Investing in infrastructure that increases climate resiliency is equally crucial to the future health and prosperity of a city that is vulnerable to multiple climate risks including the urban heat island effect and wastewater and sewage overflow flooding.

Effectively, these policy goals rely on technical capacity-building at City Hall. It is not possible to envision and oversee the redevelopment potential of Newark without information systems that can record the quantity, location, and basic structural characteristics of property in the City's inventory. Quality data about the inventory is an indispensable tool in the effective management of this finite public resource. Indeed, bureaucratic practices of quantification to conceive of and manage land inventory are as old as modern cities (Scott, 1998). Yet, municipalities operate on an uneven playing field as it relates to having basic data infrastructure to reliably collect information about their assets and services. Building the City of Newark's technical capacity to manage property data is a prerequisite to the implementation of numerous active policy initiatives premised on the use of city-owned land, from the creation of the Newark Land Bank to the Investing in Newark Communities initiative that establishes deed restrictions for up to half of city-owned property (City of Newark, 2020; City of Newark, 2023). CLiME has devoted time and resources to produce foundational data management tools and techniques in partnership with the City of Newark that allow for the efficient and creative use of city-owned land as a resource for equitable development.

CLiME began the project in October 2022 with the goals of creating an up-to-date inventory of city-owned land and developing recommendations to institute data management practices for improved efficiency. At completion, the project has yielded:

- A validated list of city-owned property with fields that indicate the disposition status;
- A restructured database to improve efficiency and prevent future data errors;
- A data dashboard and map to convey the state of the inventory to internal city users and the public.

While this research emerged out of CLiME's technical capacity-building initiative with the City of Newark, the project sparked a broader inquiry into how the City of Newark may steward and transfer public land to advance its goals of affordable housing production, equitable economic development, and climate resiliency. In the first section we describe CLiME's collaboration with the City of Newark and highlight the value of investing in municipal information systems as a cornerstone of policy implementation and evaluation. We continue in the second section by running a series of policy simulations with land inventory data. These simulations estimate the potential of affordable housing production, environmental remediation, and job creation on city-owned property based on development rights defined in the City's proposed 2023 zoning ordinance. Here we also suggest new neighborhood governance and ownership structures that embed democratic processes in local land use and redevelopment planning, such as Community Planning Boards, Community Land Trusts, and a Redevelopment Authority. In the final section we conclude by outlining policy recommendations to leverage city-owned property as a tool for equitable development.

Part 1 – How We Got Here: Reorganizing Newark's Database of City-Owned Property

CLiME partnered with the Department of Economic and Housing Development (EHD) at the City of Newark over the course of six months to produce an accurate and up-to-date dataset of city-owned property. At the time, multiple data management protocols made an accurate accounting difficult. Various departments in City Hall held critical information about the current property record identifier, ownership status, and disposition status, but information was either not digitized, structured in a standardized format, or stored on a common platform. Over seven months, CLiME's Senior Research Fellow served as an embedded consultant at City Hall to work closely with the City's Property Management Division and IT Department. Data processing steps resolved issues with missing and erroneous data required to identify parcels and validated the ownership status of property. Other datasets maintained by the City were restructured into a machine-readable format and appended to the inventory dataset to add basic information about the status of the property in the disposition pipeline. In partnership with city staff, we charted a plan to restructure the City's database management system for property inventory data.

1.1 New Tools, New Possibilities

Everything relies on information. CLiME and EHD's partnership has produced data tools and techniques that allow for the efficient and creative uses of city-owned land as a resource for equitable development. First, the inventory database will facilitate transparency about city-owned land available for redevelopment. Sharing poor quality information is akin to not publishing a list at all. Data management systems that enable the City to share reliable and easily interpretable information is essential to ensuring that public assets generate the greatest long-term public benefit.

Additionally, quality land inventory data can allow the City to implement and evaluate its policy agendas that are premised on the use of city-owned property. A dataset enables public administrators to understand the inventory in aggregate form rather than through the lens of individual parcels on a case-by-case basis. Running targeted queries allows for the identification of property available for specific redevelopment plans and projects based on filters for disposition status, property features, and zoning. For example, the dataset provides the ability to establish a pipeline of properties that are suited for transfer to the Newark Land Bank, a Community Land Trust, or certified non-profit housing developers.

More fundamentally, the updated inventory dataset allows for the more efficient stewardship of public land. For example, without a list, it is unclear whether the Public Works Department should be expending public resources to maintain a vacant lot or abandoned property that may be owned by the City, the Newark Land Bank, or even a private owner.

Operational efficiencies can be further optimized by creating an integrated information system for property data across City Hall. With a reliable dataset of land inventory in hand, the City is better positioned to join or integrate property datasets that sit in different administrative divisions, from zoning and site plan review to property tax assessments.

The inventory dataset also opens new opportunities for applied policy research. Equipped with quality data in a machine-readable format, data users in government, academia, and civic organizations can join the land inventory dataset with external datasets to explore urban planning and policy questions. For example, linking the inventory dataset to the New Jersey Department of Environmental Protection's Brownfield Inventory can help identify sites that may require environmental remediation (NJDEP Bureau of GIS, 2023). Additionally, pairing land inventory data with satellite imagery from remote sensing technology can overlay land surface temperature to consider how the redevelopment of city-owned land can alleviate urban heat islands (Filión et al, 2021). Researchers can also use satellite data in tandem with administrative datasets to derive additional information about building features that is not available or reliable in administrative records. For example, researchers can use satellite imagery to estimate building footprint area and building height or number of stories to better understand redevelopment scenarios on city-owned land (Microsoft Maps, 2018; Xu et al, 2018).

These cases provide just a few examples of policy questions that data users can explore when equipped with reliable data about city-owned property. In part two of this report, CLiME runs several policy simulations with the land inventory dataset to consider how the potential activation of city-owned land can contribute to the production of affordable housing, healthy public spaces, and local entrepreneurship and job creation in Newark. Preceding those larger inquiries, we provide in the next section an illustration of the City of Newark's land inventory to build a foundational understanding of the state of city-owned property. **Note that all calculations are based on an assessment of inventory as of June 2023; exact numbers may have changed.**

1.2 What's in the City of Newark's Property Inventory?

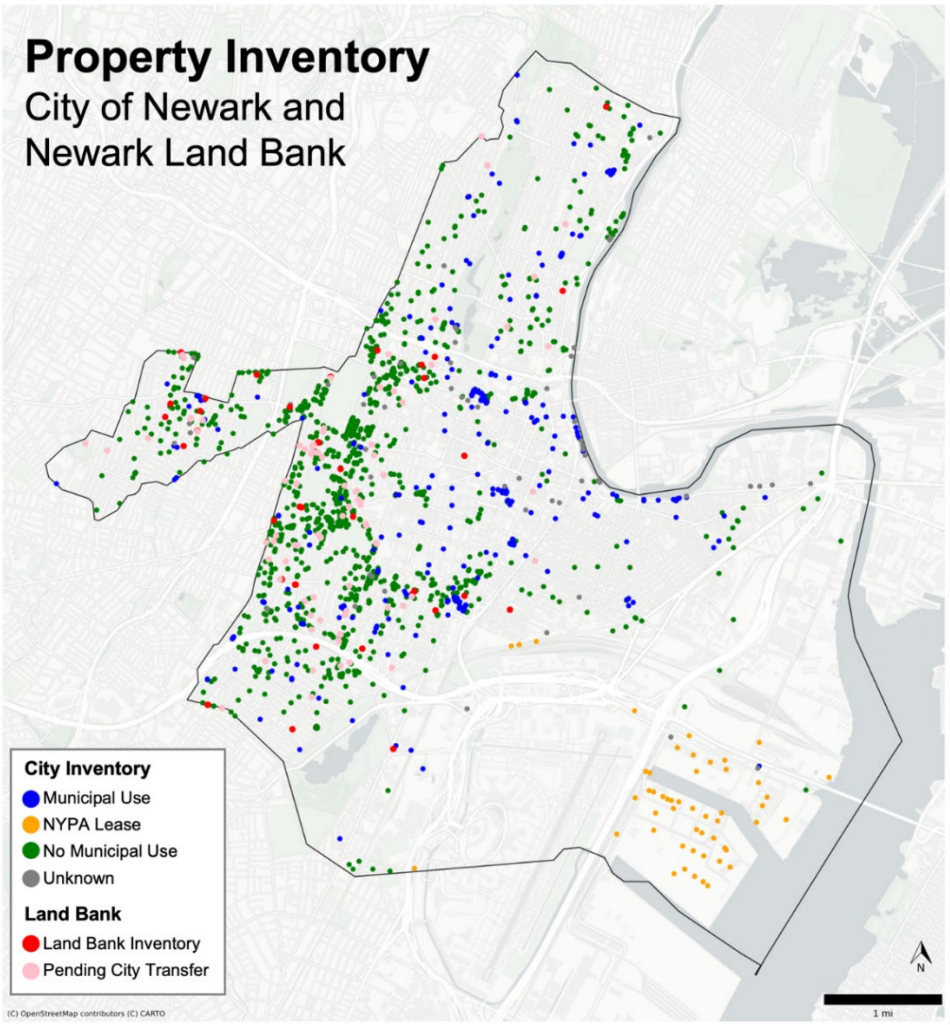
Property Classified by Principal Use

We describe the City of Newark's inventory of property in terms of four usage categories. The first category is city-owned land with an active municipal use. This includes municipal buildings as well as lots without a structure, such as parks, medians, and land used for infrastructure. The second category of city-owned property is land with a long-term lease to the Port Authority of New York & New Jersey. The third category covers the remaining property records in the inventory are city-owned property without a municipal use. This is the most critical use category from the standpoint of potential untapped public uses. The City has acquired many of these parcels from a private owner through tax delinquency, foreclosure, or a deed. A subset, but not all, property in this third

category include available parcels for the kind of equitable redevelopment we believe possible, as we show later.

The fourth category of public land reviewed here are those managed by the Newark Land Bank, a quasi-public entity established by the City of Newark and Invest Newark in 2021 charged with managing and overseeing the disposition of unutilized city-owned land. The City established an external property management entity in the form of the Land Bank to create a more efficient vehicle for advancing long-standing housing development goals. The Land Bank can facilitate the transfer of city-owned lots with greater efficiency. Invest Newark has more organizational capacity for property management. Additionally, transfers of property from the Land Bank are not subject to City Council approval, enabling the Land Bank to follow a more straight-forward disposition process. In 2020, the City of Newark transferred 85 parcels to the Land Bank. 47 of these lots have been sold and 38 lots remain in the Land Bank's inventory. City Council approved another 85 lots for transfer in 2022, which are pending transfer at the time of writing.

Figure 4



Among property held by the City of Newark, nearly three in four property records fall into the category of city-owned property without a municipal use (see **Table 5**). Out of all city-owned property without an established municipal use, one-third of property is not available because it is in the disposition pipeline, it has an interim use, or is designated for a city initiative. When only considering property available for disposition, there are 895 property records without a municipal use representing about 70 percent of city-owned land. Another 296 property records or about 23 percent of the inventory has an active municipal use. There are an additional 51 parcels representing about 4 percent of the inventory that are under a long-term lease with the Port Authority of New York/New Jersey.

Table 5

Property Records by Inventory Category - City-Wide				
Inventory Status Category	**Full Inventory**		**Available Inventory[8] (Excluding Property in Disposition Process or with Interim Use)**	
	Count	**Percent**	**Count**	**Percent**
Inventory - No Municipal Use	1,263	75.3%	895	69.0%
Municipal Use	307	18.3%	296	22.8%
Municipal Use - NYPA Lease	51	3.0%	51	3.9%
Unknown	56	4.2%	53	4.1%
Total	**1,677**		**1,295**	

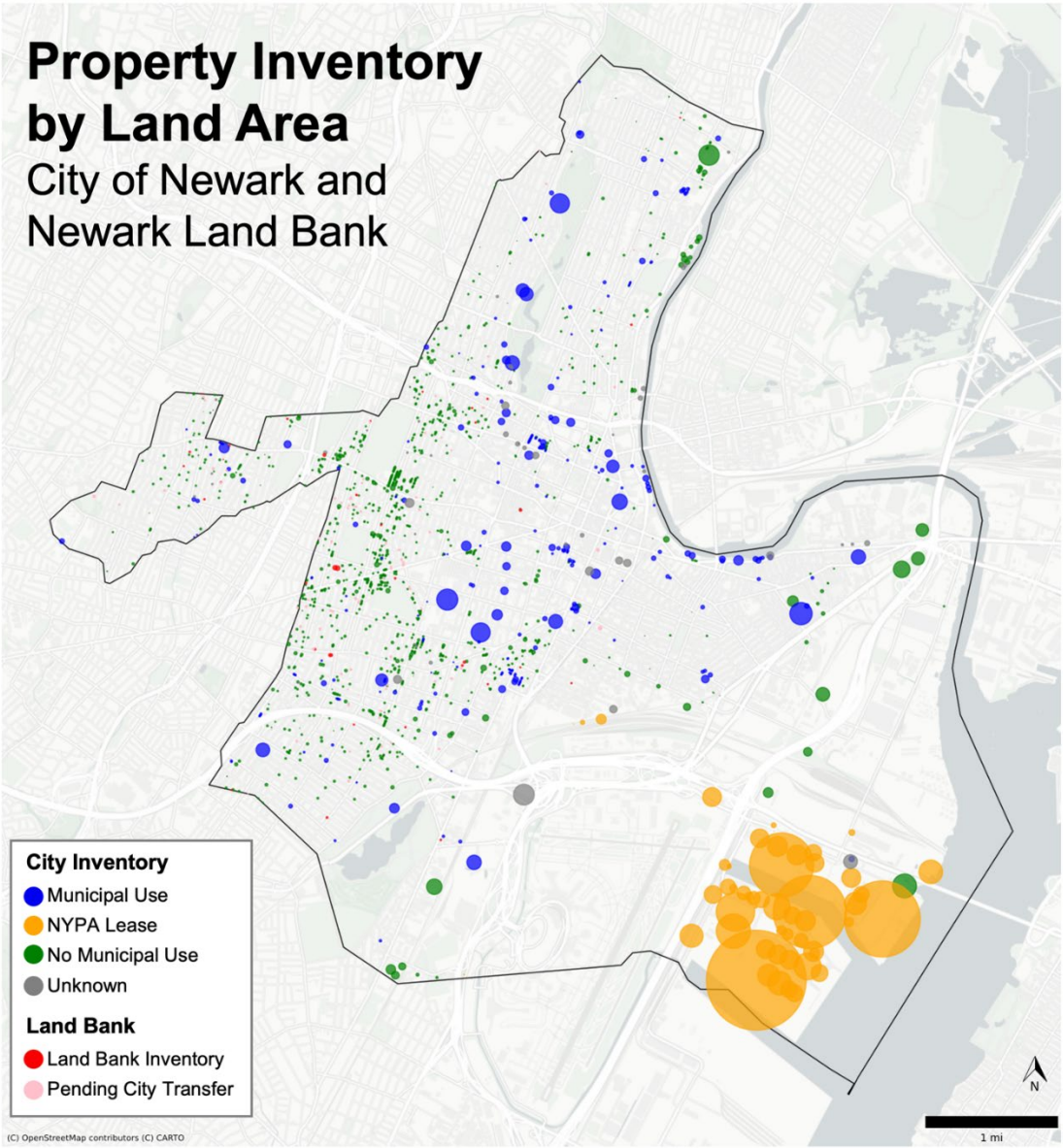
Table 5 shows a breakdown of inventory categories, with the majority of parcels potentially available for a new use. The geographic distribution of all parcels favors Newark's poorest wards, but the details show important differences in uses. City-owned property *with an active municipal use* is relatively scattered throughout Newark's five wards with several pockets of municipal buildings located in the Central Ward. Property *without a municipal use* is concentrated in the West and South Wards. The West Ward has the highest concentration of available city-owned property without a municipal use over all (96 parcels per square mile in the West Ward versus 34 parcels per square mile city-wide). The South and Central Wards have the second and third highest concentrations of city-owned land without a municipal use (61 parcels per square miles and 52 parcels per square mile, respectively). The North and Eastern Wards have the lowest concentration of city-owned property without a municipal use (25 parcels per square mile and 4 parcels per square mile, respectively).

[8] "Available inventory" excludes property in the disposition process (i.e., received a Preliminary Designation Letter from the City or received City Council approval for transfer) and property with an interim use managed by the City (i.e., city initiative, adopt-a-lot program or under a year-long Use & Occupancy Agreement).

While property without a municipal use amounts to nearly 70 percent of the available inventory in terms of the number of records, this use category represents about 10 percent of the total inventory in terms of land area. Available city-owned property without a municipal use covers 115.3 acres of land.[9] There are about 864 acres of land leased to the Port Authority, comprising nearly three-fourths of the size of inventory land area. Municipal buildings and public lots total about 153 acres or roughly 13 percent of total inventory land area.

[9] There are 28 property records that do not have a record in the parcel spatial file and therefore is missing data on lot area. Most of these property records are condo units and parking lots that are sub-elements of a lot. All descriptions of land area exclude these 28 records with missing land area data.

Figure 5

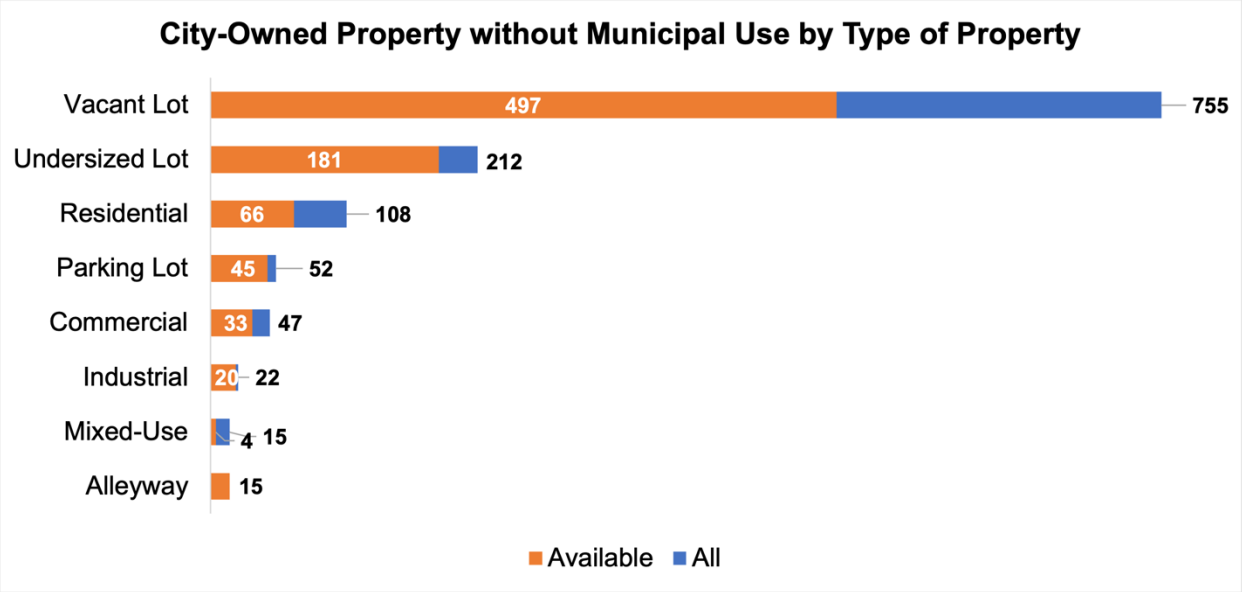


1.3 Property Inventory by Type of Structure

Various types of property make up the broader category of city-owned land without a municipal use. The most prevalent form of available property are vacant lots, representing 497 property records or nearly 60 percent of the available inventory without a municipal use. Following vacant lots, undersized lots and residential property are among the most prevalent forms of property, amounting to 20 percent and 7 percent of the inventory, respectively. Commercial and industrial properties comprise 4 percent and 2 percent of the inventory, respectively. The remaining types of property amount to less than 2 percent of the inventory without a municipal use. Nevertheless, the

substantial number of these lots may be used in the service of key policymaking goals, as we demonstrate in the simulations that follow.

Figure 6[10]



When breaking down the inventory by property structure, it is clear that property is not randomly distributed throughout the city. Vacant lots, residential property, and mixed-use buildings are highly concentrated in the West and South Wards (see **Figure 5**). Parking lots and alleyways are concentrated throughout the West and Central Wards with a few small pockets in the North Ward. Industrial properties have a divergent spatial pattern and are primarily located in the North Ward along the Passaic River.

[10] Not showing property types with less than 15 total property records. See **Table 12** in Appendix C for full table.

1.4 How is City-Owned Property Designated for Redevelopment?

Transfers of vacant city-owned property to private entity typically follow one of three disposition pipelines: redevelopment agreements by way of Property Management Division review and City Council Approval; a response to a Requests for Qualification (RFQ); or a public auction. RFQs are announced for specific city initiatives and establish a criteria by which the relevant department can review proposals. Public auctions convey land to the highest qualified bidder, regardless of the intended use. The City has not held a public auction since 2020.

Redevelopment agreements between the City and private purchaser are the primary way that the City conveys land. Interested individuals and entities can identify a vacant city-owned lot and submit a letter of interest (LOI) to the Property Management Division for review. Prior to the recent publication of a list of available properties, interested parties had to identify available city-owned lots by their own means. The Property Management Division evaluates LOIs according to a set rubric (see **Appendix B** for full rubric). Criteria include the proposal's alignment with applicable Redevelopment Plans, the purchaser's connection to the community (e.g., resident, business owner, property owner), community benefits (affordable housing and economic benefits), and the purchaser's development experience. The development of affordable housing is part of the Division's evaluation criteria, but it is not a requirement for conveying property. The Division responds to LOIs after a 45-day period and will issue a Preliminary Designation Letter (PDL) if a proposal is accepted. After receiving a PDL, the prospective purchaser has a 60-day window to submit additional documentation to EHD and the Ward Council Member. After this period, the redevelopment proposal is put on the Municipal Council agenda and must receive approval from the majority of Council Members. To close on the sale, the purchaser must submit final due diligence materials and payment before a municipal lease is drawn up.

In this section we have provided a comprehensive overview of the City of Newark's property inventory, describing the inventory by principle use and by type of structure. A comprehensive accounting of the City's property inventory is a crucial first step to imagining new, productive uses for underutilized public land. In the sections that follow, we introduce a series of simulations that explore what the redevelopment of underutilized city-owned property might look like and how it can advance key city priorities of housing affordability, equitable economic development, and climate resiliency.

Part 2 – Simulating Equitable Development with City-Owned Land

How can the redevelopment of city-owned land advance goals of housing affordability, equitable economic development, and climate resiliency? In this section, we run several policy simulations to illustrate the possibilities and limitations of redevelopment with public assets. All simulations of redevelopment potential are grounded in development rights under the City's proposed 2023 Zoning and Land Use Ordinance[11] (City of Newark, 2023). We limit the universe of land to property outside of redevelopment areas and property that is available for conveyance--i.e., property that is not in the disposition pipeline and property without a municipal use or interim use managed by the City. We refer to this land as "**available properties.**" Appendix A provides a detailed description of our methodology for the policy simulations. Note that all calculations are based on an assessment of inventory as of June 2023, so exact figures may have changed.

The policy simulations provide an estimation of maximum development potential on city-owned land based on parcel features and development rights. The simulation is not an indication of development feasibility as estimates do not account for the condition of building features due to limitations in administrative data. The simulation also does not take environmental limits into consideration, assuming that environmental issues such as contamination can be remediated prior to conveyance.[12] There are also financial limits to affordable development on public land given the availability and contingencies of public and private investment. A cost-benefit analysis engaging the various limits of development is beyond the scope of this report. Therefore, the simulations that follow offer an estimate of the upper-most limit of by-right development potential from which only a portion may be feasible depending on the set of financial and environmental limits at play.

The policy simulations seek to estimate maximum intensive uses on city-owned land for affordable housing development; below-market commercial space for neighborhood consumer amenities and for supporting economic development; and green infrastructure to support climate resiliency. Simulations based on parcel size and an approximation of development rights illustrate the potential scope

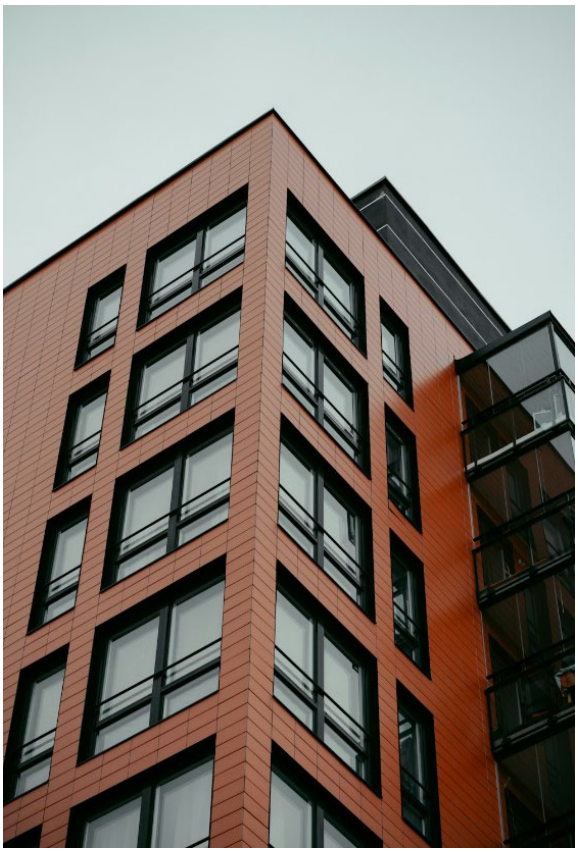
[11] Major changes under proposed 2023 zoning include permitting increased mixed-use density in neighborhood commercial corridors, increased housing development in residential districts, and replacing three Redevelopment Plans with standard zoning, among other changes. See City of Newark, 2023.

[12] There are 59 city-owned parcels comprising about 3 percent of the inventory on NJ Department of Environmental Protection's Known Contaminated Site list as of May 2023 (NJDEP, 2023). Contaminated sites on city-owned lots represents about 7 percent of all Known Contaminated Sites in the city. While environmental remediation is a prerequisite to the activation of these public lots and an assumption of the simulations, fully addressing contamination on these lots, in many cases, is an extensive undertaking that should not be understated.

and location of redevelopment on city-owned land. Detailed feasibility studies are required to determine the viability of individual redevelopment uses. Further, civic engagement and democratic processes should guide redevelopment planning, which may justifiably modify the parameters of maximum intensive use set by the simulation. Over all, the three Newark simulations provide a path to producing:

- 2,568 affordable housing units;
- 102 below-market commercial suites in mixed-use buildings that provide essential consumer amenities that support the social determinants of health;
- About 4 million square feet of below-market light industrial building space that can accommodate 666 advanced manufacturing businesses and 137 creative and technology firms;
- Nearly 300 green infrastructure sites on non-buildable lots and more than 400 green roofs on existing municipal buildings and proposed affordable housing and commercial sites.

Imagining redevelopment at the scale of the city rather than a parcel-by-parcel basis prompts a set of questions about the need to form a governance and public management infrastructure to make decisions and carry out plans. The first question is "who decides?" If the goal of redevelopment on public land is to generate public value, then what entities are charged with making decisions about how to align redevelopment with a host of pressing social and economic needs? Further, what role do Newark residents play in decision-making about redevelopment on public land in their neighborhoods? The next set of questions concern how plans are carried out. What entities are charged with the brick-and-mortar work of redevelopment? Finally, what entity owns the land and is responsible for serving as a steward of the public asset?



Simulation 1: Facilitate Development of 2,500 Units of Affordable Housing

Preventing housing displacement and facilitating affordable housing options have been twin goals of the Baraka Administration since its first term in office. CLiME has studied housing affordability in Newark and beyond for several years. That shared interest in addressing one of the most stubborn crises of American cities led to this simulation in which we illustrate ways in which the City might accelerate reaching its affordable housing goals through the empowerment of city-owned properties.

2.1 How Many Affordable Housing Units Can Newark Build on Public Land?

The first housing simulation shows that using available city-owned property for affordable housing production could produce an estimated 2,568 units of affordable housing in standard zoning districts that permit residential uses.[13] (Note that all calculations are based on an assessment of inventory as of June 2023.) Simulated affordable housing production represents 38 percent of the City of Newark's 2021 Housing Goal to produce 6,600 affordable units by 2026 (City of Newark, 2021). However, the approximately 2,500 affordable housing units represents an even smaller fraction of need for affordable housing. Though CLiME does not recommend that all affordable housing units are used for rentals, simulated affordable housing units would represent substantial progress—15 percent toward the 15 percent—toward the approximately 16,000 affordable units required to meet existing need for affordable rental housing (Troutt & Nelson, 2021). Like many U.S. cities, Newark's affordability gap is that significant.

Simulated affordable housing production includes a range of single-family, multi-family, and mixed-use buildings, reflecting land availability in relation to land use regulation on permitted density by zoning district (see **Table 6**). The location of simulated affordable housing production is also a function of land availability as opposed to geographic need. Nearly half of simulated housing production is located in the South Ward. Another 29 percent of sites are located in the West Ward and 17 percent of sites are located in the Central Ward. The East and North Wards have relatively fewer simulated housing units, representing about 8 percent and 5 percent of all units, respectively (see **Table 7**).

[13] The simulation only analyzes the potential for affordable housing production in standard zoning districts that permit residential uses. There is greater potential to produce additional affordable housing units in redevelopment areas that are outside of the scope of the simulation.

Table 6

Number of Simulated Structures & Simulated Units by Structure Type		
Structure Type	**Simulated Structures**	**Simulated Units**
Single-Family	12	12
Single-Family with ADU	6	12
Three- and Four-Family	233	784
Townhouse	18	142
Multifamily (5+ units)	10	433
Mixed-Use Buildings (not including first-floor)	40	1,185
Total	**319**	**2,568**

Figure 7

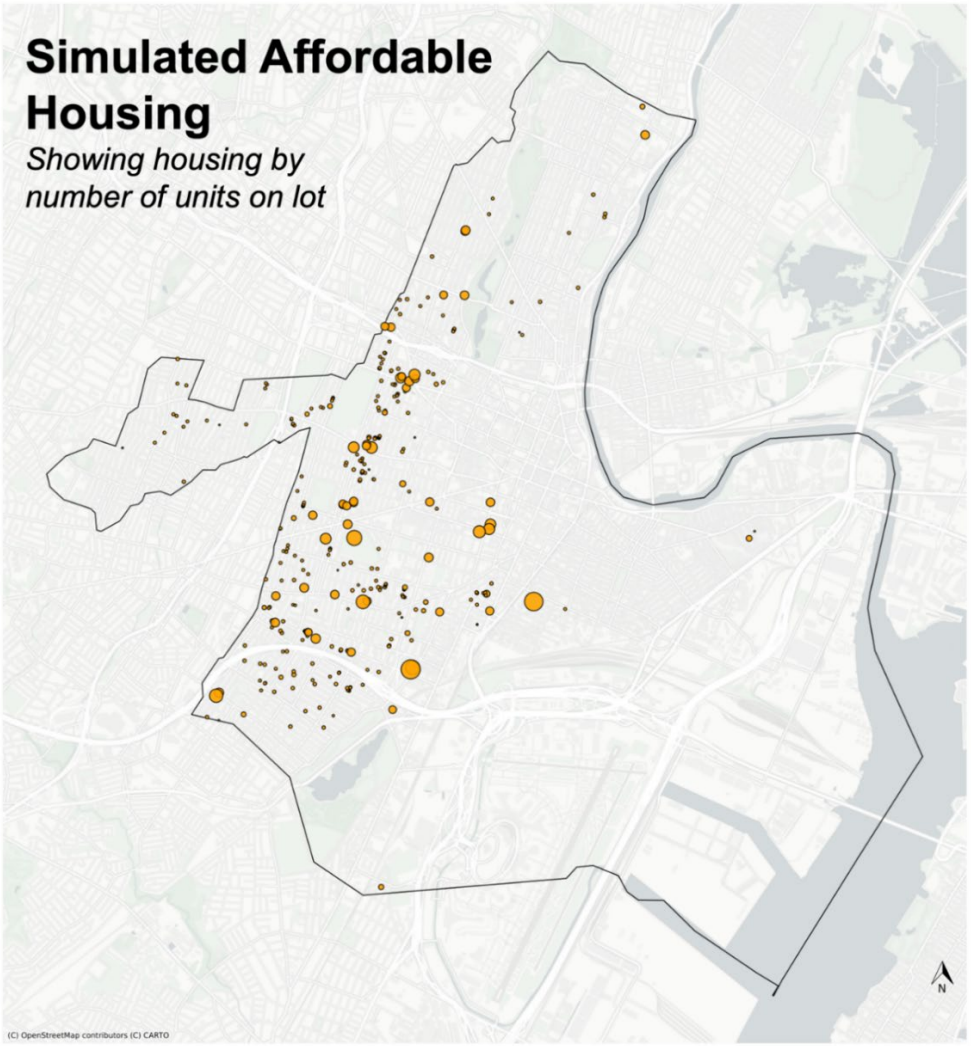


Table 7

Simulated Housing Production on Public Land by Ward		
Ward	**Affordable Housing Units**	**Affordable Housing Units Share**
South	1,172	45.6%
West	659	27.7%
Central	434	18.2%
East	187	7.9%
North	116	4.9%
City-Wide	**2,568**	**100%**

2.2 How Many Households Can 2,500 Affordable Units Serve? Resale Restrictions and the Scope of Affordability

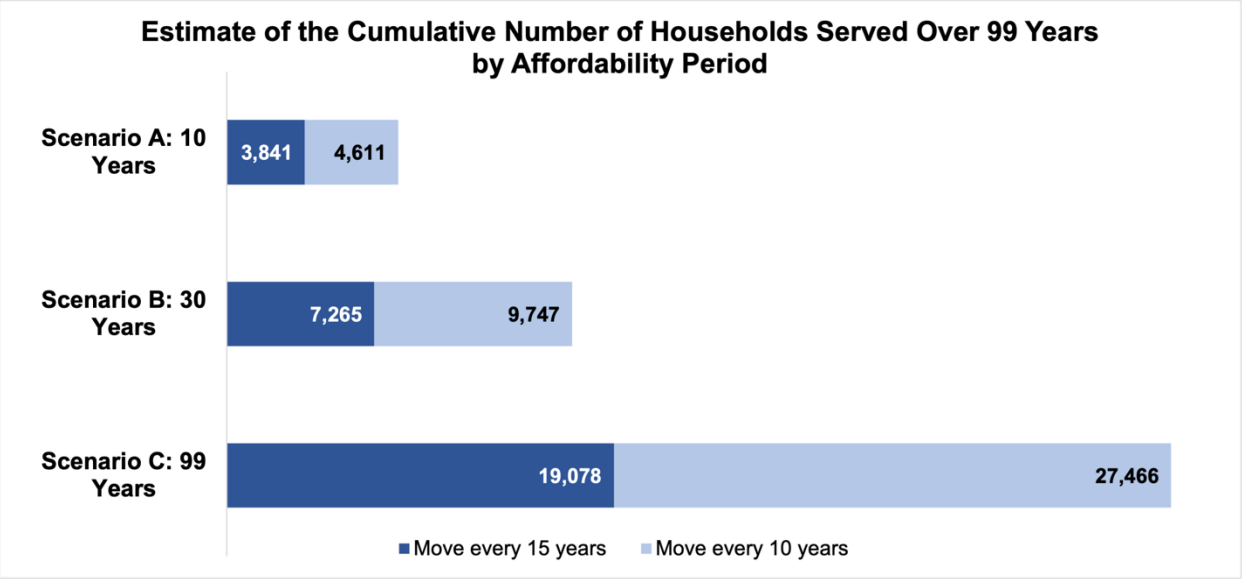
How many Newark households can be served by the simulated 2,500 affordable units developed on public land? The answer depends on the length of protections that are placed on affordable housing to retain affordability over time.[14] If the simulated housing units had a longer affordability restriction period of 99 years, these units could serve about 2.8 times more households than a 30-year restriction period over the course of 99 years. A 99-year affordability period would serve nearly 6 times more households than a 10-year affordability restriction over the same course of time.

Expansion Through Density

Newark can potentially increase the number of affordable units developed on city-owned lots by merging contiguous parcels before conveyance. Among the subset of all parcels in the inventory included in the simulation, 286 parcels were contiguous lots that share a border with another vacant city-owned property. In certain zoning districts, merging contiguous lots would qualify the merged parcel to construct housing a greater density by-right. Take the four vacant city-owned lots on Kent Street in the West Ward as an example. These lots are just under 2,500 square feet in area and sit in a "community commercial" C-1 zoning district under the proposed 2023 zoning ordinance. Taken alone, these lots do not meet the minimum lot area requirements for permitted residential buildings in community commercial districts, which include low-rise multifamily and mixed-use buildings up to five stories. Merging these lots would provide almost 10,000 square feet in lot area, making it possible to build a 38-unit low-rise multifamily building. Identifying and merging all contiguous parcels before conveyance would further optimize how Newark can create public benefit from public land.

[14] We replicate Lubell's (2013) methodology to compare the cumulative number of households served depending on the duration of affordability restrictions.

Figure 8



Current city policy allows for the resale of affordable housing at a market rate after just a few decades, diminishing the affordable housing stock for future generations. Since 2019, affordable housing conveyed by the Newark Land Bank must abide by affordability restrictions for a period of 20 years (Newark Land Bank, 2021). In January 2023, City Council passed an ordinance placing a 30-year deed restriction on up to 50 percent of city-owned property used to develop affordable housing (City of Newark, 2023). The Homeownership Revitalization Program, another city initiative announced May 2023, establishes a ten-year resale restriction on housing developed under the program (City of Newark, 2023). Though we understand the goal of wealth enhancement that may be served by allowing homeowners to recoup any market gains in half a generation, we think the trade-off in expanding affordability favors longer term protections.

In support of this conclusion, we compare city policy to a longer affordability period by estimating the difference in the cumulative number of households served over time (Lubell, 2013). Scenario A represents the City's 10-year affordability period for the Homeownership Revitalization Program. Scenario B illustrates the reach of the City's Affordability Deed Restriction of 30-year resale period.

Scenario C shows an alternative affordability period of 99 years. This longer restriction period is grounded in the imperative to preserve public land for public benefits. Although affordability periods for HUD-funded projects are typically up to 30 years depending on the program and grant size (U.S. Department of Housing and Urban Development, 2013), local jurisdictions have filled the gap by establishing longer resale restrictions ranging from 50 to 99 years, or in perpetuity (Grounded Solutions

Network, 2019). As the Housing Director of Stamford, Connecticut put it, "If we allowed these units to expire after 30 years, which was the conventional HUD affordability term, we'd start losing units as fast as we produced them, and it would be a futile program" (Ibid). Stamford and other localities such as Cambridge, MA, Chicago, IL, and Montgomery County, MD have established affordability periods up to 99 years after seeing tens of thousands of HUD-funded affordable units expire after just three decades (Ibid).

For the purposes of comparison, we test the 2,568 simulated affordable units for each scenario and assume that households move every 10 to 15 years (Anderson, 2022). Under Scenario A with a 10-year affordability period, about 3,800 households to about 4,600 households would be served by the approximately 2,500 affordable housing units. Scenario B shows that a 30-year affordability period could serve *almost double* the number of households, reaching 7,265 households to about 9,750 households. After 10 years or 30 years, the owner could sell their home at market-rate, or under a rental scenario, the landlord could convert the unit to market-rate rental. If the City were to institute a longer resale restriction of 99 years, the City could serve nearly *six times* more households than a 10-year resale restriction or about 2.8 times more households than a 30-year affordability restriction.

2.3 Bold Affordable Housing Policy at Scale

Newark has an opportunity to advance bold affordable housing policies at scale by leveraging city-owned land as a public asset. Current housing initiatives premised on the use of city-owned property are making important strides, but are only using a small portion of available land. Equitable Investment in Newark Communities (EINC), an initiative announced March 2023, included city-owned lots. If the same set of simulation assumptions are applied EINC lots, CLiME estimates these lots could produce up to 117 affordable units if half of all units are allocated for affordable housing.[15] Another 2023 program, the Homeownership Revitalization Program (HRP), has 34 designated lots that can produce an estimated 148 homes in the first iteration of the program.[16] Additionally, the City is using available land to provide permanent supportive housing for the homeless population. Four planned sites will create 100 beds, contributing to the City's goal to provide shelter to 10,000 homeless families and individuals by 2021 (City of Newark, 2022). The simulation shows how available city-owned property might facilitate development of an

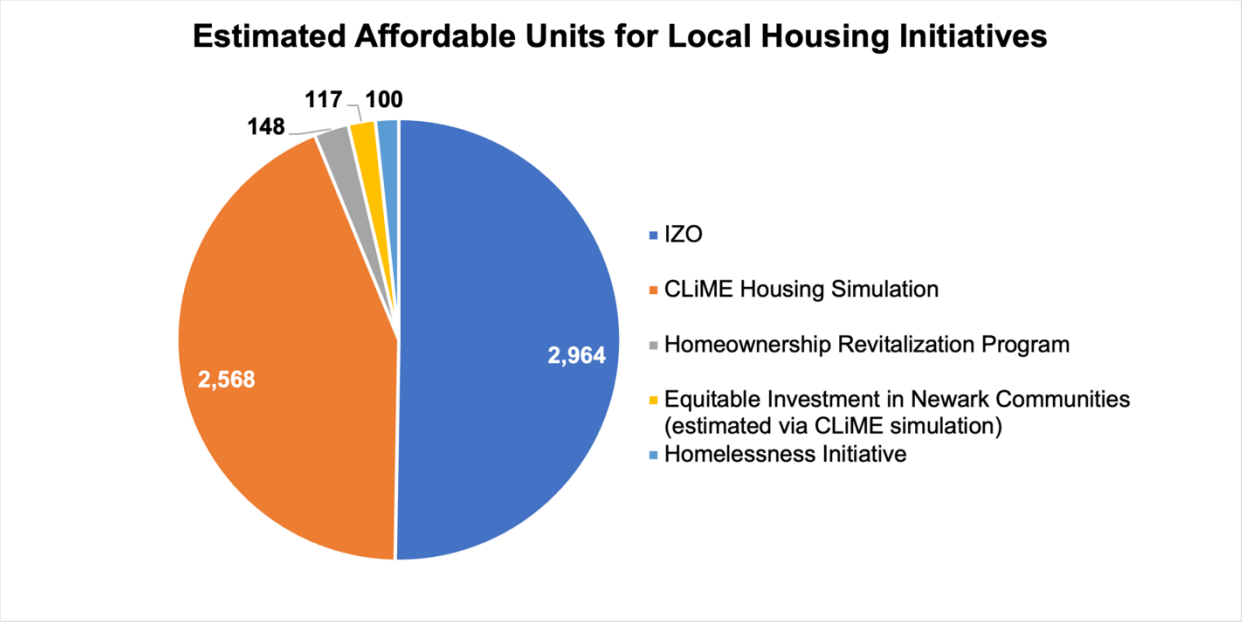
[15] We estimate that EINC will produce up to 117 affordable units and 117 market-rate units based on the city-owned lots included in the City's 2023 Request for Qualifications. The City's RFQ acknowledged that developers may propose building on other city-owned lots not listed in the proposal document. This estimate follows the same assumptions as the affordable housing policy simulation. The estimate assumes that projects will produce the maximum number of units permitted under the City's proposed 2023 zoning ordinance. Further, the estimate is in accordance with the City's standard that 50 percent of units produced under EINC are affordable as per the City's Affordable Housing Deed Restriction.

[16] A Newark resident is any current resident who has resided in the city for 5 years or a resident who has been displaced and previously lived in Newark for 5 years.

additional 2,500 housing units that can remain affordable to Newark renters over the long-term.

Another important attribute of affordable housing on city-owned land is the depth of subsidy it provides, which supports the conditions for much lower-income residents to benefit. Our simulations calculate income targets as low as 30 percent of Area Median Income (AMI). This the median income of Newark renters (Nelson and Troutt, 2022). Affordable units produced by the Inclusionary Zoning Ordinance (IZO) are between 40 percent to 60 percent of AMI (City of Newark, 2022). Federal programs such as the Low-Income Housing Tax Credit produce rental units at 50 percent or 60 percent of AMI (NLIHC, 2022). Conveying city-owned property at a nominal fee amounts to a substantial subsidy for development, accompanied by the ability to experiment with innovative affordable development models. For instance, transferring the land to a Community Land Trust (CLT) would safeguard the long-term affordability of the land. Issuing a ground lease for residential structures on the land, whether the uses are for affordable rentals, shared equity cooperatives, or owner-occupied units, would diminish costs for tenants because they are only leasing the structure, not the land. Next we explore the City's legal authority to undertake this development and further discuss possible ownership structures.

Figure 9



2.4 Ownership and Governance Systems for Affordable Housing

The redevelopment of city-owned property into affordable housing raises a series of questions as to what governance and management infrastructure should be established to facilitate the efficient and equitable redevelopment of underutilized public land. Numerous questions need to be answered about how to map available resources onto public needs. Can a city be a developer, a facilitator of specific kinds of development or even a landlord of properties it owns? Should a city convey all or part of the land to nonprofits or private developers, or should it continue as an owner? What forms of housing or commercial tenure should be produced? Affordable rentals, owner-occupied units, and shared-equity cooperatives are all forms of tenure that meet specific needs of subsets of the population and warrant further investigation. These questions among others point to the need for a governance system that outlines which set of actors decide how public resources are used. This section offers partial answers.

A governance infrastructure is needed to make decisions about how to use public resources and align available assets with myriad public needs that relate to affordable housing.

State law gives Newark significant redevelopment powers. Under New Jersey's Local Redevelopment and Housing Law ("LRHL" or "Act"), municipalities have broad authority over land use, including the buying and leasing of property and the delegation of land use powers to agencies they create for redevelopment purposes. According to the Act, a city's redevelopment authority is

conditioned on compliance with planning processes. Specifically, initiate an investigation as to whether an area is in need of redevelopment or rehabilitation, determine that the area is indeed of such redevelopment or rehabilitation, and adopt a plan pursuant to the same.[17] Much of the available land in Newark is not currently designated as in need of redevelopment, but it could be so long as it meets statutory criteria. Once a parcel is designated, the public must receive notice and an opportunity to be heard.[18] Any subsequent redevelopment projects must comply with a redevelopment plan approved by the city council that includes affordable housing in accordance with the "Fair Housing Act" and the housing element of the municipal master plan.[19] Once a city completes these steps, the Act confers sweeping powers on the designated redevelopment entity, including to take private property by eminent domain; the power to issue bonds; to acquire property; to clear any area owned or acquired and construct site improvements essential to the plan; to arrange or contract with public agencies or redevelopers for the planning and construction of any project or redevelopment work, or for the acquisition by such agency or entity of property options or property rights or for the furnishing of property in connection with a redevelopment area.[20] Furthermore, the redevelopment entity or agency has the power to "**lease or convey property or improvements** to any other party…**without public bidding and at such prices and upon such terms as it deems reasonable**, provided that the lease or conveyance is made in conjunction with a redevelopment plan" (emphasis added).[21] Readers interested in learning more about the details of city redevelopment authority under the LHRL should see our separate memorandum on the CLiME website.

Newark clearly has the legal authority to put its public lands to myriad uses, but how would it exercise such power as a practical matter? Typically, City and Newark Land Bank programs have connected the opportunity to develop affordable housing on below market-rate land as an opportunity to support local minority-owned businesses in construction and real estate development. After the property is developed, the developer will either sell the home to a household who will become homeowners, or the developer can become a landlord and rent out the property. This model has worked successfully for several City housing initiatives.

2.5 A Local Redevelopment Authority

Given the scale of available properties, we explore a slightly different redevelopment authority model, created for either the single purpose of the equitable redevelopment of city-owned residentially zoned land or the dual purpose of both city-owned residential and commercial/industrially zoned properties (discussed in the second simulation). We leave for further

[17] 40A:12A-4(a).
[18] *See* N.J.S.A. §§ 40A:12A-6. *See also* Harrison Redevelopment Agency v. DeRose, 398 N.J. Super. 361 (App. Div. 2008).
[19] N.J.S.A. §§ 40A:12A § 7(b).
[20] *Id. at* § 8(a)-(e).
[21] *Id.* at § 8(g).

research the question of whether such an entity should also oversee the re-use of city-owned land for environmental purposes (discussed in the third simulation). A potential "Newark Redevelopment Agency" would have the power to act as redeveloper itself, in addition to contracting to lease or sell property to private developers or other third parties. The Agency would have the power to acquire from the City property designated as in need of redevelopment or rehabilitation once a redevelopment plan is adopted by resolution. Perhaps most importantly to potential redevelopment of these City-owned parcels, the Agency would then have the power to lease or convey property, fixtures, or improvements **without public bidding and at such prices it deems reasonable**. This is imperative, of course, because conveying property interests at a nominal fee or below-market rate amounts to a substantial subsidy for a would-be developer. It has the potential, if done prudently, to incentivize and spur growth.

Fortunately, Newark already has two entities that exercise similar redevelopment authority, the Newark Housing Authority and Newark Land Bank under Invest Newark. Under the LRHL, a municipality may authorize its municipal housing authority or land bank to act as a redevelopment entity.[22] Whether either or both entities would assume these substantial additional duties is a question beyond the scope of this report. It is important to note, however, that Newark has faced these governance issues before.

Beyond questions of the City's legal authority lie question of ownership and administration. These too require more collaborative policymaking than we can offer here. However, CLiME's research reveals that there is potential to scale affordable housing development on multiple, non-contiguous lots through the creation of Community Land Trusts (CLTs) and Community Planning Boards.

2.6 Community Land Trusts

Establishing a CLT in Newark to steward affordable housing constructed on city-owned land could contribute to Newark's affordable housing goals by securing long-term affordability and empowering tenant stewardship of housing. Community Land Trusts (CLTs) are non-profit entities that own land to remove land from the private market and establish community ownership (CLiME, 2017). CLTs can establish a ground lease for structures built on the land, which may involve a variety of uses such as affordable housing, commercial, or mixed-use buildings.

CLTs can help Newark preserve affordable housing over time because CLTs abide by a community-based governance system that can hold leadership accountable to stewarding land for the public interest. CLTs have a tripartite board structure that includes three stakeholder groups: (a) leaseholders that occupy buildings on the land, whether that is tenants of affordable housing or below-market commercial space; (b) residents from the surrounding community who are not tenants; and (c) other representatives from civic organizations or city government (Thaden & Lowe, 2014). The

[22] *Id.* at § 21.

tripartite board structure ensures that multiple stakeholders groups have decision-making power, establishing a community-based system of "checks and balances" to ensure that the interests of tenants are not overlooked and do not grow to overpower public interests.

What might a CLT in Newark look like? CLTs can be structured as contiguous parcels or composed of lots dispersed across a city (Thaden & Lowe, 2014). In Newark, there is an opportunity to transfer clusters of lots suited for multi-family residential development to a CLT. A Newark CLT that establishes a ground lease with a shared-equity cooperative would create a strong governance and financial foundation for affordable housing that opens avenues toward stability and modest wealth-building for low- and moderate-income households. While CLTs provide organizational support that draws on the leadership capacity of community representatives and civic leaders, shared equity cooperatives offer an accessible financial structure for shared ownership (Ehlenz, 2018).

2.7 Community Planning Boards

Establishing Community Planning Boards can create a direct role for Newark residents to shape land use and redevelopment decisions that directly impacts their neighborhood. CLiME has demonstrated that available city-owned land creates an opportunity for redevelopment at a meaningful scale in Newark. Newark residents should have a leading say in how public land is used and managed to create public benefit for those in greatest need. Community Planning Boards can elevate civic engagement by creating new leadership roles and forums for residents to voice needs and debate visions of the future for their neighborhood (CLiME,

Community Planning

Community Planning Boards in New York City shows how communities are embedded in the land use and redevelopment planning process. In New York City, Community Planning Boards have one salaried District Manager and 50 unsalaried members who serve on various committees (City of New York, 2023). Chief responsibilities include hosting hearings for residents and coordinating with city officials and agencies. Community Boards have final decision-making power in land use decisions regarding the disposition of city-owned property, land acquisition, the siting of municipal facilities, housing plans, variances, and zoning map changes, among other land use decisions (NYC Department of City Planning, n.d.).

How can Community Planning Boards fit into Newark's existing land use and redevelopment governance system? Community Planning Boards would need to establish a leadership structure with capacity to effectively coordinate with existing bodies, including City Council, City of Newark's Division of Planning and Zoning, the Central Planning Board, and the Zoning Board of Approval. A leadership structure for Community Boards should create creates fair opportunities for residents from a variety of vantage points to take on salaried and volunteer leadership roles through a process that may involve a combination of applications, elections, and appointments by elected local officials.

2017). Formalizing neighborhood-based governance acknowledges that residents are also experts in local land use and redevelopment questions and have important knowledge to contribute that benefits city government.

2.8 Financing Affordable Housing Development on City-Owned Land

Financing is equally as important to affordable housing redevelopment as governance. How can Newark finance the development of about 2,500 affordable housing units on city-owned land? While the conveyance of city-owned land at a nominal fee significantly minimizes acquisition costs, developers should anticipate pre-development costs to support feasibility studies, legal fees, and architecture and engineering costs. Pre-development and development financing strategies will likely involve seeking a combination of federal, state, and private sources that each provide a different type of capital. Capital for pre-development and development financing are composed of senior debt, subordinate debt, and equity (see **Table 8**).

Senior debt typically contributes the largest portion of capital, often representing up to 65 percent of total project value. Senior debt is considered "low risk" because it is the first loan that is repaid and secured by project collateral (i.e., land and improvements on land). Public and private entities with resources and organizational capacity to issue large loans are best positioned as senior debt lenders. The New Jersey Housing Mortgage Finance Agency (NJHMFA) has three multifamily development loan programs funded by taxable and tax-exempt bonds. The latter provides a lower interest rate that can provide more amenable financing to affordable housing development and rehabilitation (NJHMFA, 2023).[23] Private sector senior debt lenders include Community Development Financial Institutions (CDFI) and commercial banks. Affordable housing development is central to the mission of national and regional CDFI loan funds and credit unions. These entities have specialized pre-development and development loan products for affordable multifamily development. Commercial banks with Community Reinvestment Act obligations are also potential senior debt lenders, though interest rates may be higher than community development lenders.

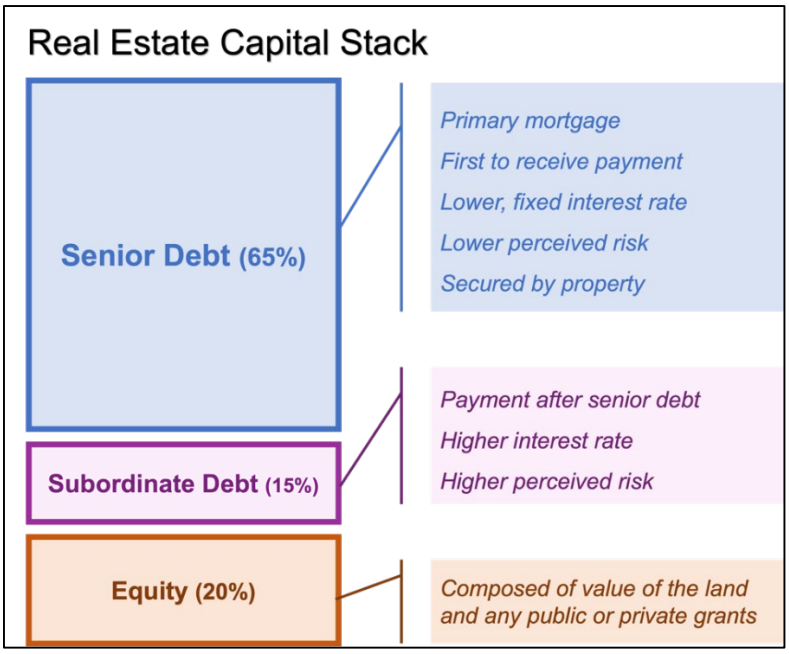
Since senior debt lenders typically only offer a loan at 65 percent of the value of the total project, there is a need for additional loans to fill the gap between senior debt and equity. Sitting second in the capital stack, "**subordinate" or "mezzanine" debt** is considered "higher risk" because the lender is repaid after the senior lender and the loan is not secured by project collateral. In the context of market-rate projects, a mezzanine lender expects higher rates of return in exchange for greater risk. However, public and private entities committed to supporting affordable housing can design a bridge loan fund that provides subordinate financing with amenable terms to help projects leverage senior debt from other sources. For example, the NJ Department of Community Affairs administers several programs offering a

[23] As of February 2023, NJMFA issues long-term tax-exempt bonds for a 32-year term at a 6.15 percent interest rate (NJHMFA, 2023).

second amortizing loan at a one percent interest rate with capital from the New Jersey National Housing Trust Fund (NJ Department of Community Affairs, 2023). Projects in Newark are not eligible for these funds because the programs target municipalities with court-approved fair share housing obligations (Ibid). Another source of state bridge funding for predevelopment costs is the New Jersey Redevelopment Authority (NJRA)'s Urban Site Acquisition Fund. The $20 million revolving loan program provides bridge loans for acquisition and predevelopment (NJRA, 2023). Although the cost of acquiring city-owned land should be minimal, bridge loans from this program could aid predevelopment costs such as feasibility studies, engineering, and architectural fees. While bridge funding for predevelopment cost is crucial to the financial package, there is a need to establish a reliable source of bridge financing for development costs.

There is an opportunity to create and sustain a bridge fund for affordable housing development that targets projects in Newark. Regional CDFIs are best positioned to coordinate with the City to administer the fund because they have organizational capacity for fundraising, project management, underwriting, and oversight. Self-Help Credit Union's Durham Affordable Housing Loan Fund and LISC Bay Area's Partnership for the Bay's Future Fund are example of place-based bridge funds administered by local CDFIs. These funds are capitalized by a mix of grants from foundations, donors, and corporations alongside patient capital from impact investors (Bay Area LISC, 2023; Self-Help, 2023). These funds offer loans from $200,000 to up to $7.5 million with fixed interest rates between 3.4% to 5% (Ibid). Newark needs a reliable source of gap financing for affordable housing development to leverage capital from senior debt lenders.

Figure 10



Finally, equity represents up to 20 percent of a capital stack. The City's conveyance of city-owned land at a nominal fee is effectively a public subsidy for an asset that functions as equity in the deal. Additional grant capital from public and private sources is needed. Key sources of federal funds are the U.S. Department of Housing and Urban Development (HUD)'s Community Development Block Grant (CDBG) program and HOME Funds for acquisition, rehabilitation, and development. In 2022, HUD granted the City of Newark about $6.9 million in CDBG funds and $3.1 million in HOME funds (HUD, 2023). Additionally, philanthropic grants from foundations and corporate sponsors may serve as equity in the deal.

Table 8

Capital	Sources	Terms
Senior Debt (65%)	• Commercial Banks with CRA obligations • NJHMFA Tax-Exempt Bond • CDFI Loan Funds • CDFI Credit Unions	Provides loan up to 65% of the value of the project (65% Loan-to-Value) Interest rate 4% - 8% (varies with market conditions)
Subordinate Debt (15%)	• NJRDA Urban Site Acquisition Fund for predevelopment costs • Place-Based Affordable Housing Bridge Fund	Provides loan 100% to 120% of the value of the project Low-cost loan with amenable interest rates (1% - 5%)
Equity (20%)	• Public Grants • Philanthropy • Corporate contributions	

Simulation 2: Use commercially and industrially zoned land to fuel equitable development of jobs, businesses and placemaking

We explore how affordable commercial space can advance equitable economic development in Newark by identifying city-owned lots in zoning districts that permit commercial and industrial uses. How can the redevelopment of commercially zoned city-owned property create spaces where equitable economic activity can flourish? Equitable economic development is not merely growth (i.e., a quantitative increase or "more of") but more crucially a qualitative change in what business ownership, work, and production looks like and how it benefits Black and Brown Newark residents who have long been excluded from wealth-building in urban economies (Feldman and Lowe, 2017). Equitable economic development requires creating new capacity to seed and scale local minority-owned businesses, create quality jobs, and harness the talents and creativity of Newark's workforce for economic innovation (Ibid). CLiME believes even this definition is too siloed from the need for placemaking in neighborhoods. Local businesses and institutions affect employment, wealth creation but also social determinants of health, a sense of community and distinctive culture. Therefore, in this simulation, we imagine equitable economic development including the eradication of food deserts, improved access to health care and other features of neighborhood placemaking beyond the established goals of job creation and entrepreneurship. Most neighborhood institutions need affordable space in order to interact with the public. Creative use of city-owned land can stimulate neighborhood growth on behalf of residents.

In this simulation, we imagine equitable economic development including the eradication of food deserts, improved access to health care and other features of neighborhood placemaking beyond the established goals of job creation and entrepreneurship.

Beginning with jobs, Newark plays host to large employers in the region across economic sectors, from major universities and hospital systems to the Port Authority and Prudential Insurance. Yet, most Newark residents do not find jobs with promising career ladders within city limits. More than four in five jobs located in Newark are filled by non-residents. Meanwhile 75 percent of Newark residents in the labor force work outside of their city (City of Newark, 2020). The unemployment rate in Newark is about double statewide levels with joblessness hitting the Black population at nearly double the rate of the Hispanic and White Non-Hispanic populations (U.S. Census Bureau, 2019). It is crucial that urban economic policies aiming to seed or bring new business to Newark are coupled with robust workforce development

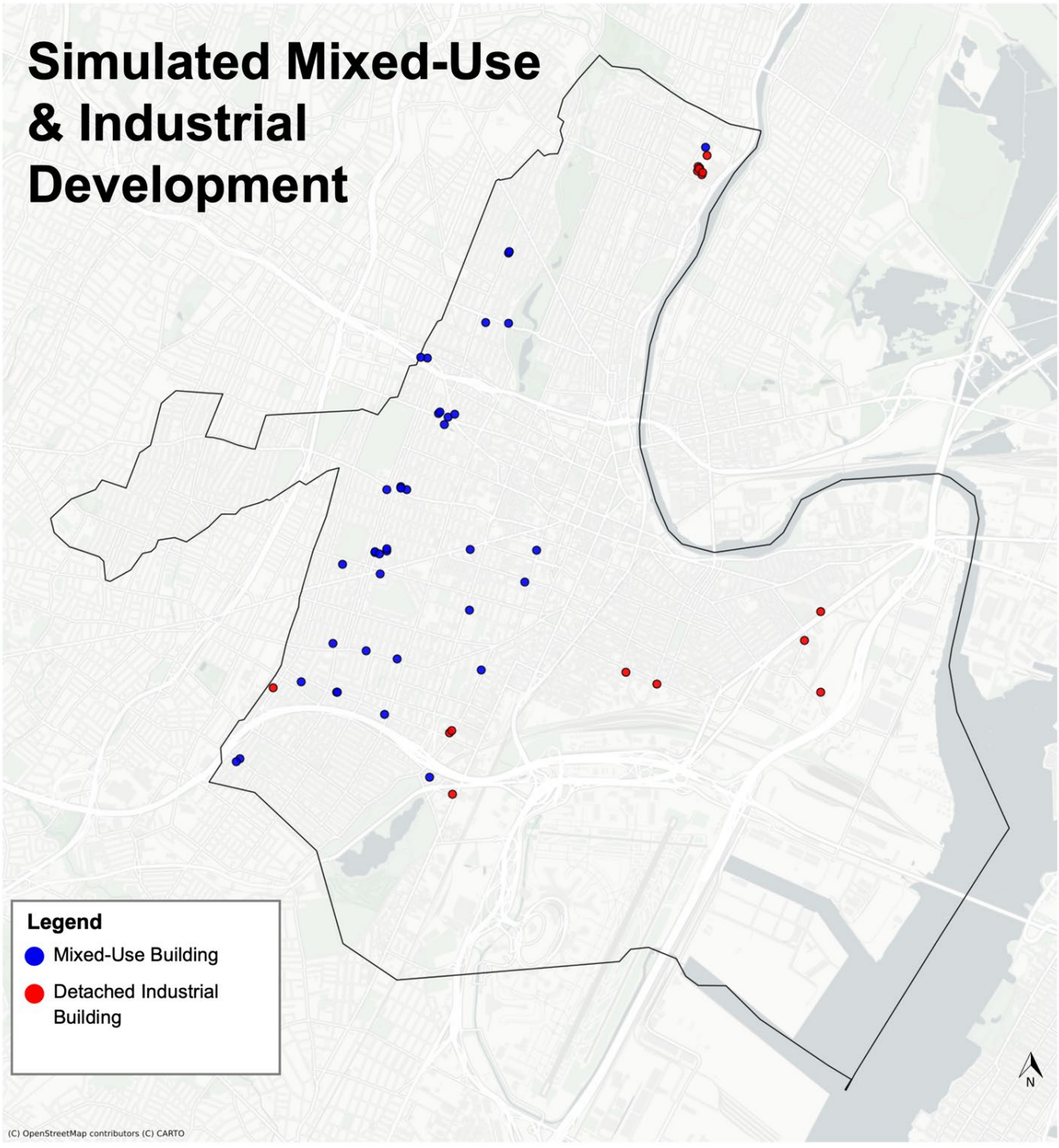
initiatives that address racial segmentation in labor market outcomes.

Entrepreneurship holds promise as a wealth-building and job creation vehicle, but local minority-owned businesses must overcome significant structural barriers that impede their success. About 70 percent of Newark businesses are owned by people of color, yet Black- and Latino/a-owned businesses in Newark have valuations at three percent and 19 percent the levels of white-owned firms (Prosperity Now, 2019). A confluence of structural barriers inhibits the growth of Black and Brown-owned businesses. Prosperity Now reports that minority-owned firms in Newark are less likely to scale their businesses, in part stemming from challenges in accessing capital for expansion (Ibid; City of Newark, 2020). Among the factors of production required to start or expand a venture, land is a fundamental component that comes at an increasingly high cost. Rising commercial rents, which have ranged from 7 percent to up to 26 percent annually in recent years, risks destabilizing businesses and creating a barrier to entry for new firms, especially for minority-owned firms (Moe & Garneva, 2021). The Federal Reserve reported that more than half of both Black and Hispanic employer-owned firms reported rent as a financial challenge compared to 40 percent of white employer-owned firms (Federal Reserve, 2021).

Two tranches of underutilized land present distinct economic and social benefits. The first set of properties we highlight in this section consist of first-floor commercial space within mixed-use buildings. The affordable housing simulation in the prior section identified 38 suitable parcels for mixed-use buildings. Situated in mixed-use zoning and community commercial zoning districts, these parcels are close to residential areas and collocated with dense clusters of simulated affordable housing sites. We propose that first-floor commercial spaces in these buildings serve as affordable commercial space for essential consumer amenities that make neighborhoods healthy and livable places, such as grocery stores, daycares, cafes, and community health clinics.

The second set of properties examined in this section are located in industrial and large-scale commercial (C-3) zoning districts. These lots are located farther away from residential centers of the city and zoned for light industrial and commercial uses. We propose that these lots are used as light industrial space to support Newark's advanced manufacturing renaissance, a strategic economic sector that is uniquely positioned to support equitable development in Newark through local business ownership, living income jobs, and economic innovation. Note that all calculations are based on an assessment of inventory as of June 2023.

Figure 11


Simulated Mixed-Use & Industrial Development
Legend
Mixed-Use Building
Detached Industrial Building
N
(C) OpenStreetMap contributors (C) CARTO

3.1 Affordable Commercial Space for Consumer Amenities and Livable Neighborhoods

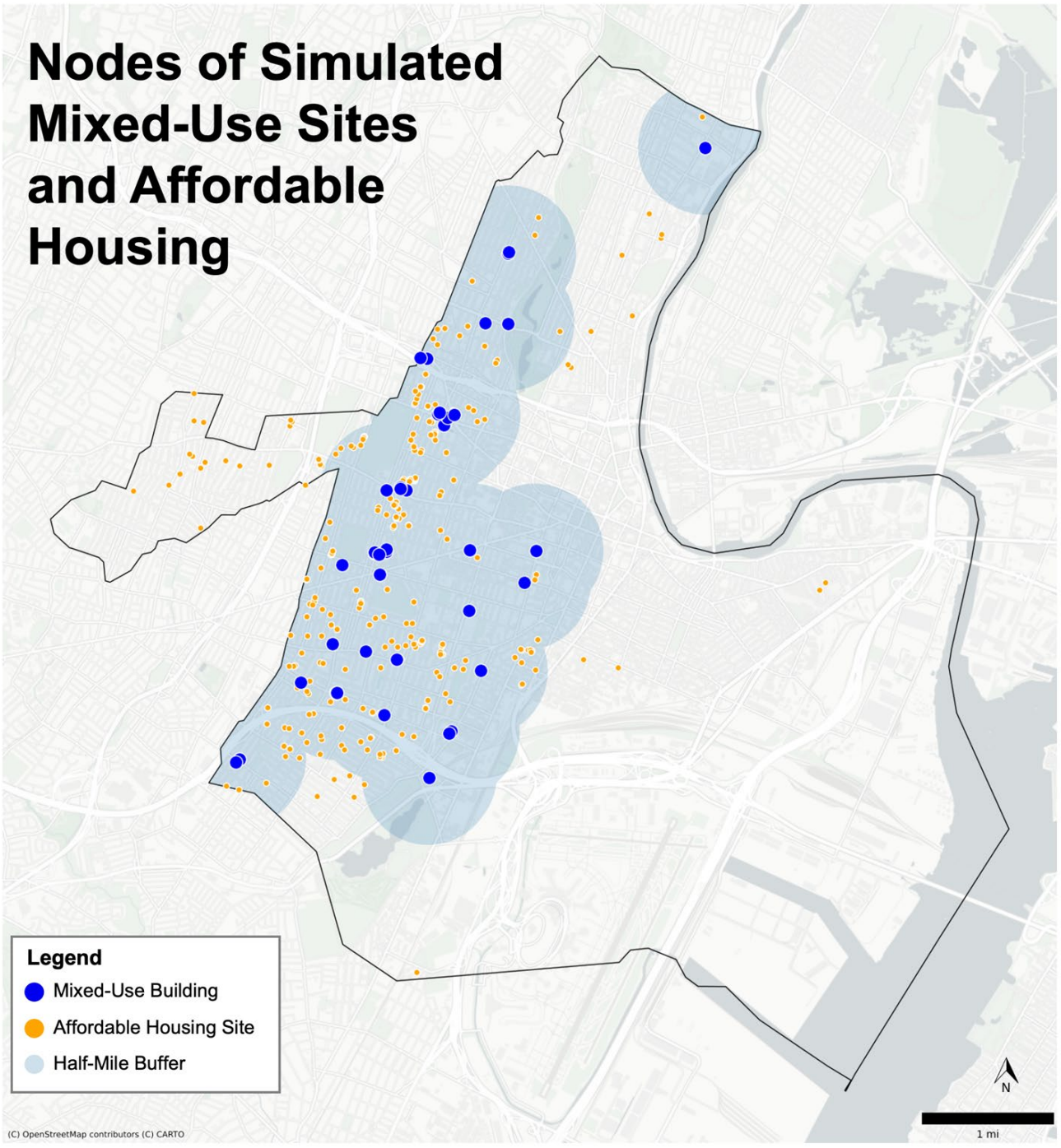
Commercial spaces in mixed-use neighborhoods can provide healthcare and essential consumer amenities that affect the social determinants of health. The housing simulation in the prior section identified 40 city-owned lots in mixed-use and commercial zoning districts where it is possible to develop mixed-use buildings. Here, we suggest that the first floor of these mixed-use buildings is reserved for affordable commercial and community space with the remaining floors devoted to affordable housing. Potential uses in first-floor commercial space that support the social determinants of health include community clinics, grocery stores, daycares, exercise studios, and restaurants. Simulated ground floor space across these 40 buildings amounts to a total of 191,503 square feet of commercial space. These spaces are relatively small in size with a median building footprint of 3,824 square feet. If these spaces are split into small- and medium-sized suites for a range of health-oriented and community uses, these 40 sites could accommodate about 100 health-oriented tenants if floor area is split into a mix of small suites (1,000 to 1,500 square feet) and medium suites (ranging from 2,200 to 3,600 square feet).

If these spaces are split into small- and medium-sized suites for a range of health-oriented and community uses, these 40 sites could accommodate about 100 health-oriented tenants if floor area is split into a mix of small suites (1,000 to 1,500 square feet) and medium suites (ranging from 2,200 to 3,600 square feet).

Affordable commercial space can provide multiple benefits that advance community development. Healthy food and consumer amenities in a walkable distance of one's home can advance public health and spark neighborhood life on the streets. Additionally, affordable commercial spaces provide opportunities to incubate local businesses, creating entrepreneurial and job opportunities for Newark residents. Consumer stores and health clinics can become multifunctional spaces that embeds community development services in neighborhoods.

The proximity of consumer and healthcare amenities to large clusters of proposed affordable housing units makes these sites optimal vehicles for placemaking and community development. About 2,500 simulated affordable housing units representing approximately 90 percent of all simulated housing units are located within a ten-minute walk or half-mile radius of a first-floor retail site (see **Figure 12**). Nearly 80 percent of these sites are in the South and West Wards. Almost 15 percent of simulated sites are in the Central Ward while only about 3 percent of sites are located in the North and East Wards, respectively.

Figure 12


Nodes of Simulated Mixed-Use Sites and Affordable Housing
Legend
Mixed-Use Building
Affordable Housing Site
Half-Mile Buffer
N
1 mi
(C) OpenStreetMap contributors (C) CARTO

3.2 Why Creating Affordable Space for Amenities Matters for Community Development

Creating affordable space for essential neighborhood amenities can help transform neighborhoods into healthy places of belonging. Several clusters of proposed affordable housing and mixed-use sites are located in areas with high poverty and vacant property rates. High concentrations of vacant city-owned lots in predominantly Black neighborhoods in the West and South Wards constitute one of many forms of deep socioeconomic disadvantage fueled by segregation and structural racism.

The 2,500 proposed affordable housing sites from the first simulation are located in neighborhoods that exhibit dire levels of social vulnerability according to the CDC's Social Vulnerability Index[24] (Center for Disease Control, 2020; see **Figure 13**). Access to quality health care is also limited in these neighborhoods. About 44 percent of the proposed housing sites are more than a half-mile distance from a community health clinic, a mission-driven health care setting that provides on average have exhibited superior performance in delivering quality care to low-income communities of color relative to hospital settings (U.S. Department of Health and Human Services, 2021; Shi et al, 2001). These neighborhoods also have limited access to basic consumer amenities that make neighborhoods livable. About 16 percent of proposed housing units are located within a food desert designated by the USDA as a low-access food area[25] (USDA, 2020; see **Figure 14**). Grocery stores with fresh food, daycare centers, and other general consumer goods are in short supply in neighborhoods with high concentrations of vacant property.

Community Health

Creating affordable commercial space for health-oriented uses creates opportunities for local entrepreneurship and community development. Oasis Fresh market, a Black-owned grocery store in Tulsa, Oklahoma exemplifies how mission-driven commercial real estate development can make a grocery store more than a place to buy fresh food in a food desert. In partnership with the local economic development authority, Oasis Fresh Market's 1,000 square-foot grocery store became a "community hub" where people came to buy fresh food and take advantage of services in designated space for credit counseling, housing assistance, and mental health services (Hamer, 2023). In Newark, affordable commercial space for health-oriented uses creates multiple benefits, including local business ownership and jobs and essential consumer amenities.

[24] The CDC Social Vulnerability Index reflects population and housing characteristics that indicate social vulnerability, including socioeconomic status (high poverty, high unemployment, low income, no high school diploma); household characteristics (age 65 and older, age 17 or younger, disability, single-parent households); minority status and language (minority, speaks English "less than well"), and housing type/transportation (multi-unit structures, mobile homes, crowding, no vehicle, group quarters). (CDC, 2020).

[25] We use the U.S. Department of Agriculture Economic Research Service's variable for low-income and low-access with a vehicle variable. This variable includes census tracts where "more than 100 housing units do not have a vehicle and are more than one-half mile from the nearest supermarket, or a significant number or share of residents are more than 20 miles from the nearest supermarket" (USDA, 2020).

Figure 13

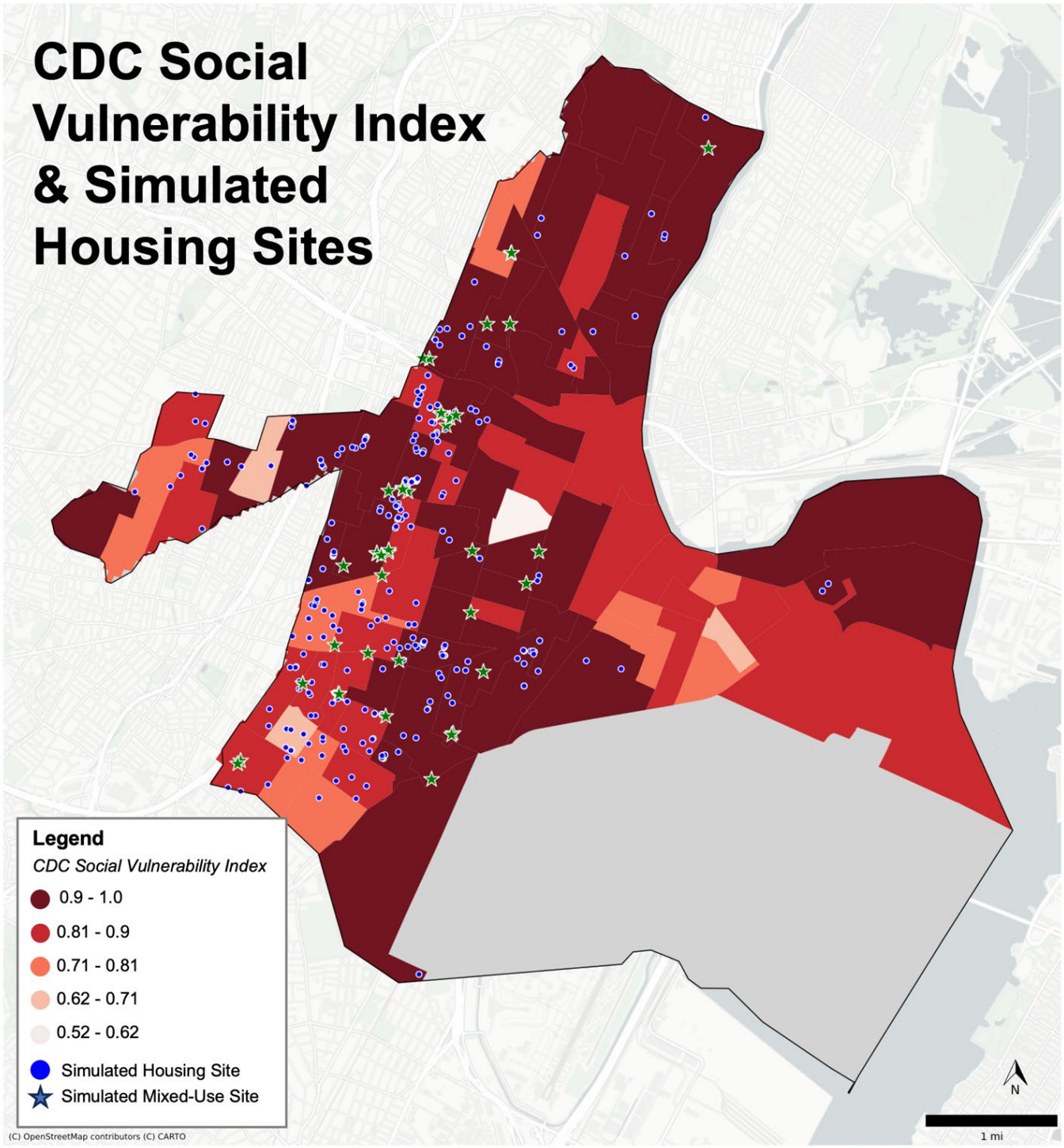
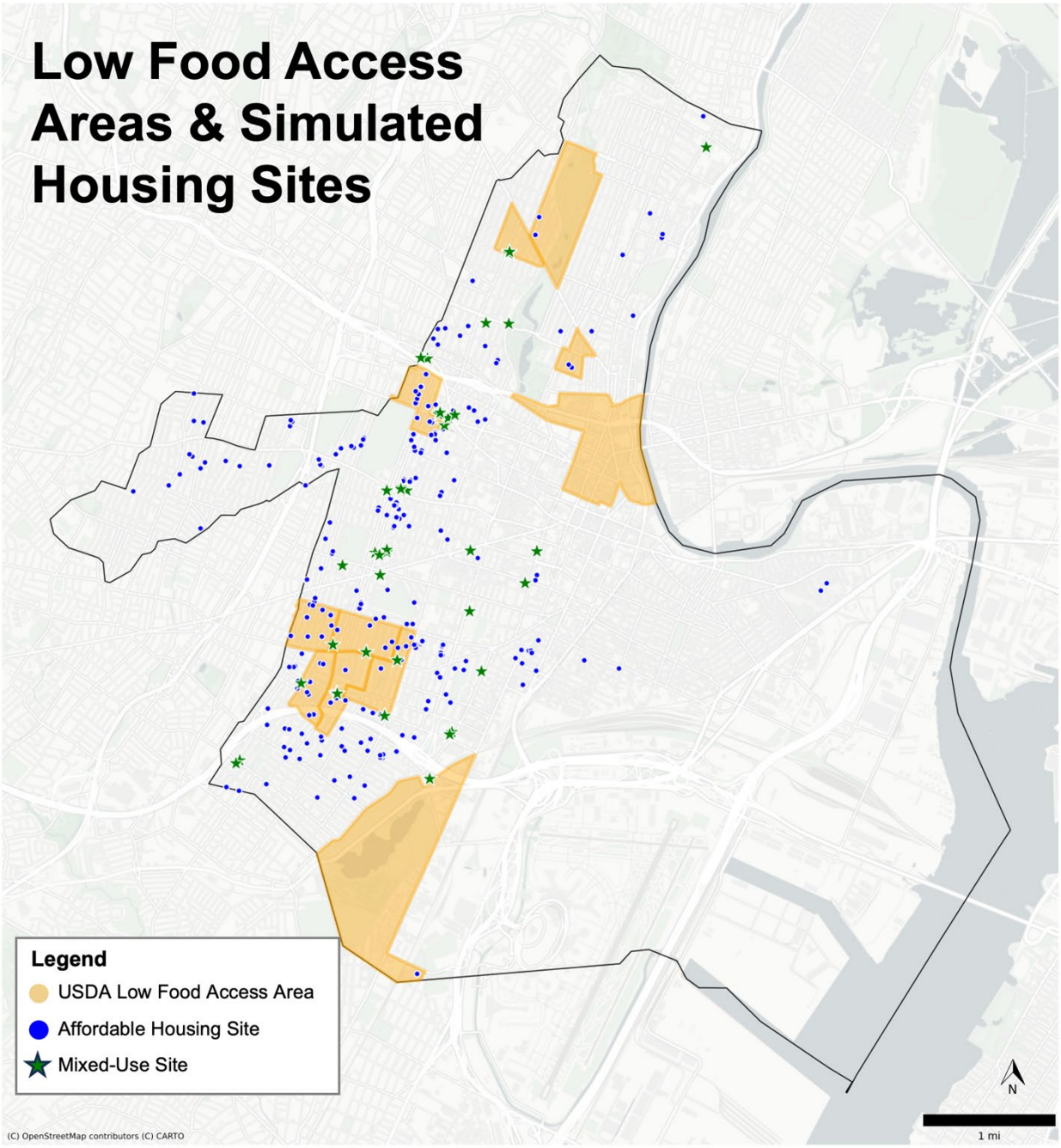

CDC Social Vulnerability Index & Simulated Housing Sites
Legend
CDC Social Vulnerability Index
0.9 - 1.0
0.81 - 0.9
0.71 - 0.81
0.62 - 0.71
0.52 - 0.62
Simulated Housing Site
Simulated Mixed-Use Site
(C) OpenStreetMap contributors (C) CARTO
N
1 mi

Figure 14


Low Food Access Areas & Simulated Housing Sites
Legend
USDA Low Food Access Area
Affordable Housing Site
Mixed-Use Site
N
1 mi
(C) OpenStreetMap contributors (C) CARTO

3.3 Sparking Equitable Economic Development: Setting the Foundations for Newark's Advanced Manufacturing Renaissance

Developing light industrial space with below-market rent to support advanced manufacturing can help drive equitable economic development in Newark. Using available industrial-zoned city-owned land to create affordable industrial space for multisectoral clusters of production, research, and design businesses could potentially support 800 growing businesses. Examples of advanced manufacturing subsectors include "support manufacturing" that creates component parts for maritime, aviation, and logistics industries associated with Newark's largest anchor: the Port Authority of New York/New Jersey. Other types of advanced manufacturing that fits within existing local strongholds include medical supplies for Newark and New Jersey's hospital systems as well as offshore wind technology for the burgeoning green economy.[26]

Using available industrial-zoned city-owned land to create affordable industrial space for multisectoral clusters of production, research, and design businesses could potentially support 800 growing businesses.

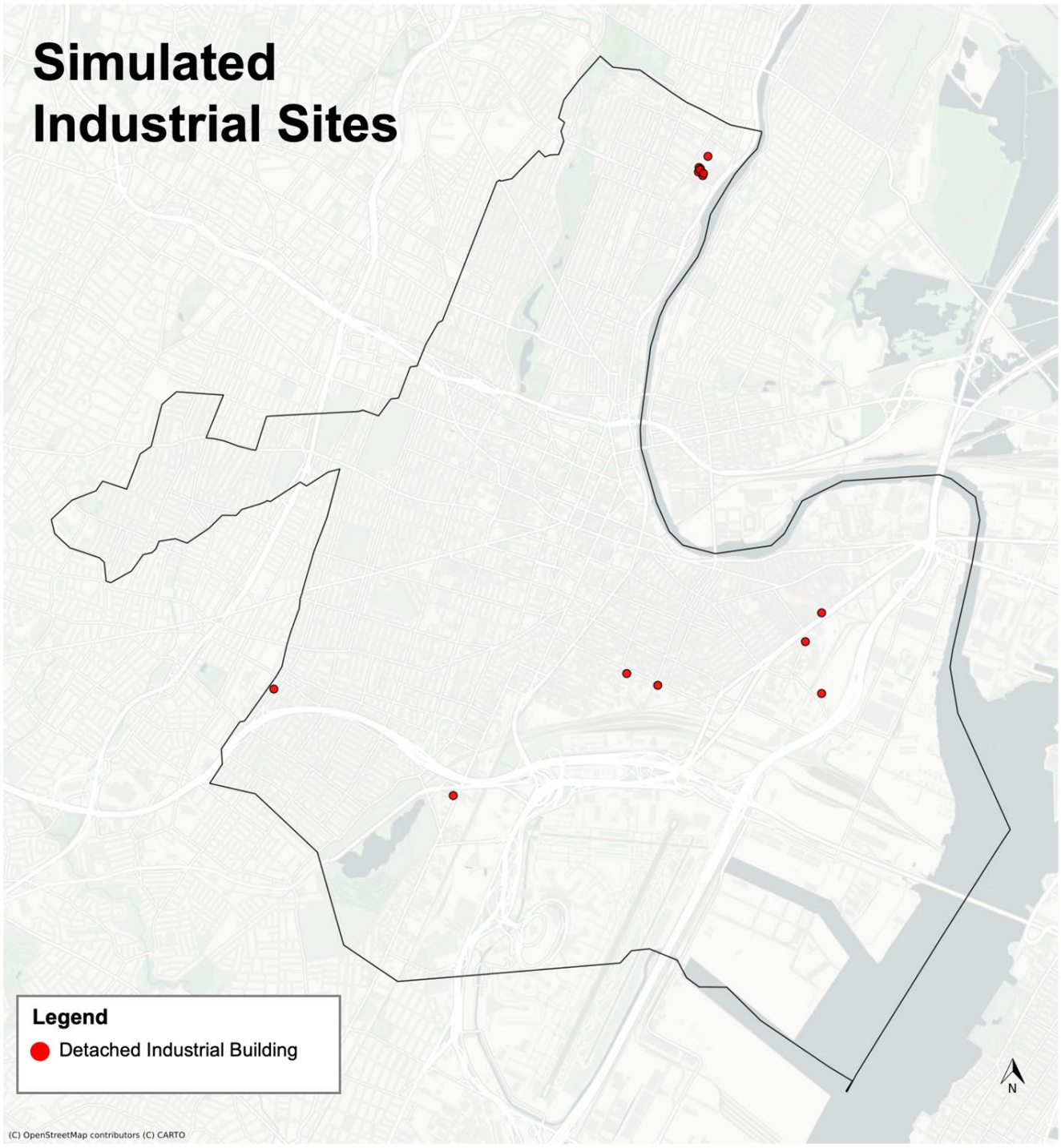
Advanced manufacturing can help Newark promote equitable growth by creating local entrepreneurial opportunities, providing quality jobs for workers with vocational training, and driving economic innovation through cross-sectoral collaboration with research-oriented anchor institutions and creative industries. Modern manufacturers in the early to mid-phases of business development need small spaces at an affordable price point, which is in very short supply in Newark where the large-scale logistics industry competes for coveted industrial land close to the port (Author's Interview; Mistry et al, 2013). They also would greatly benefit from proximity to research institutions and creative industries.

Nine industrially-zoned city-owned sites provide an opportunity to create nearly 4.2 million square feet of building space in six- to eight-story modern light industrial buildings.[27] Almost all parcels are located in the eastern-half of the city across the East, South, and North Wards. Together these parcels have a total land area of about 716,457 square feet. There are two large parcels in the North and East Wards with land areas of about 392,000 square feet and about 178,000 square feet, respectively.

[26] (Author's interview).

[27] There are 14 parcels that make up 9 sites in industrial zoning districts under the proposed 2023 zoning ordinance. Six contiguous lots were merged for the purpose of simulating development potential. The simulation assumes that sites will be developed to the maximum permitted density (6 or 8 stories depending on the zoning district). We also assume that 70 percent of land area will be used for the building, which is less than the permitted building footprint area of 85 percent of land area in light of requirements for parking and loading docks for trucks. Notably, 3 out of 16 of the selected sites are on the NJDEP Known Contaminated Site list and would require significant environmental remediation to activate as viable commercial use (NJDEP, 2023). See **Appendix A** for a full discussion of the simulation methodology.

Figure 15


Simulated
Industrial Sites
Legend
Detached Industrial Building
N
(C) OpenStreetMap contributors (C) CARTO

We simulate light industrial buildings composed of a mix of spaces for multisectoral economic uses across production, technology, and design industries. In the simulation, light industrial space is 65 percent of total building area and office space is 10 percent of total building area. Industrial and office space is divided into small and medium-sized suites to accommodate demand for smaller space among early and mid-stage manufacturers. For two of the largest sites, we also include two large light industrial spaces at 75,000 square feet to draw an anchor manufacturing tenant. Another 5 percent of total building area is for shared equipment such as 3D printers, computers, and robotics to help early-stage advanced manufacturing firms access new technology while reducing production costs. To help facilitate cross-sectoral relationships among tenants, five percent of total building area is used for shared amenities, such as lounges, cafes, and food halls. The remaining 15 percent of total building area is non-rentable building space (e.g., hallways, elevators, and mechanical areas). Additional site-specific research is required to determine how building space should be allocated according to planned uses.

Based on the hypothetical allocation of uses in the simulation described above, the simulation shows that potential development on available sites could accommodate about 660 tenants in light industrial space and about 140 tenants in office space.

Based on the hypothetical allocation of uses in the simulation described above, the simulation shows that potential development on available sites could accommodate about 660 tenants in light industrial space and about 140 tenants in office space. If 70 percent of all usable industrial and office space is leased and rents are priced between $10 per square foot and $20 per square foot,[28] revenue could range between about $20.8 million to $41.7 million. Additional revenue could be generated from tenants providing on-site amenities such as cafes and food halls as well as fees for using shared equipment.

Strategic planning for tenant selection and coordination with economic development organizations will be crucial to activate light industrial space for Newark's equitable development goals. Local, minority-owned firms and businesses that hire Newark residents for technical production jobs should be prioritized in affordable leasing. For example, mission-driven industrial real estate projects offering below-market rent in legacy cities such as Pittsburg, Indianapolis, and St. Louis evaluate potential tenants and establish rent based on local hiring practices and estimated job density (Urban Manufacturing Alliance, 2019). Workforce development

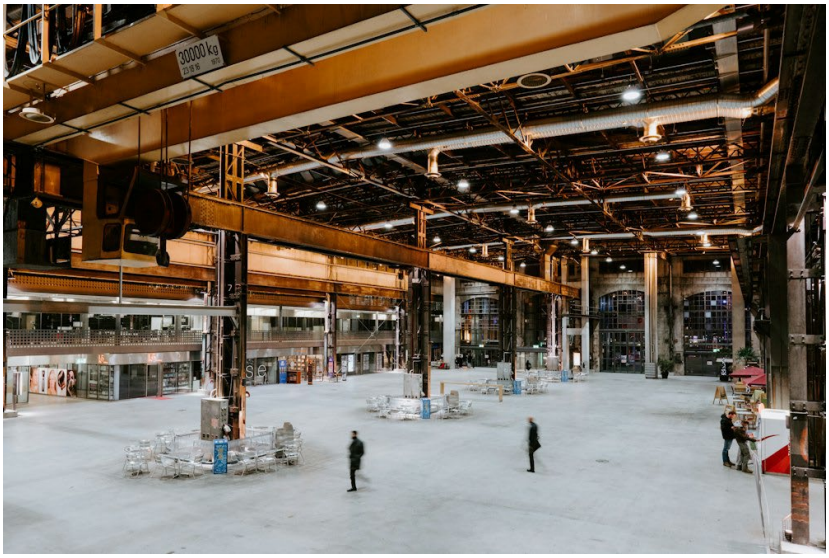
[28] There is not a well-established formula for "affordable" commercial rent. Below market-rate commercial rent is relative to market rate rents and the greater the difference, the greater the subsidy given to the business. We present a range here that is between 23 percent to 62 percent lower than market rate. In 2023 industrial rents in Newark ranged from about $19.50 per square foot to $26 per square foot, which is among the most expensive industrial rents in New Jersey (CBRE, 2023).

and small business development organizations can also contribute to project goals by leasing space. The Brooklyn Navy Yard has an on-site workforce development intermediary connecting residents to job opportunities with more than 500 employers across production, design, and administrative occupations (Brooklyn Navy Yard, 2023). Additionally, a 150,000 square-foot industrial project in Pittsburgh managed by a Community Development Financial Institution curated space for Black-owned manufacturing businesses that grew out of their financing and technical assistance program (Urban Manufacturing Alliance, 2019). There is a need to define an evaluation criterion for filling space and establishing below-market rent that reflects the project's equitable development goals.

3.4 Governance Systems for Commercial Development

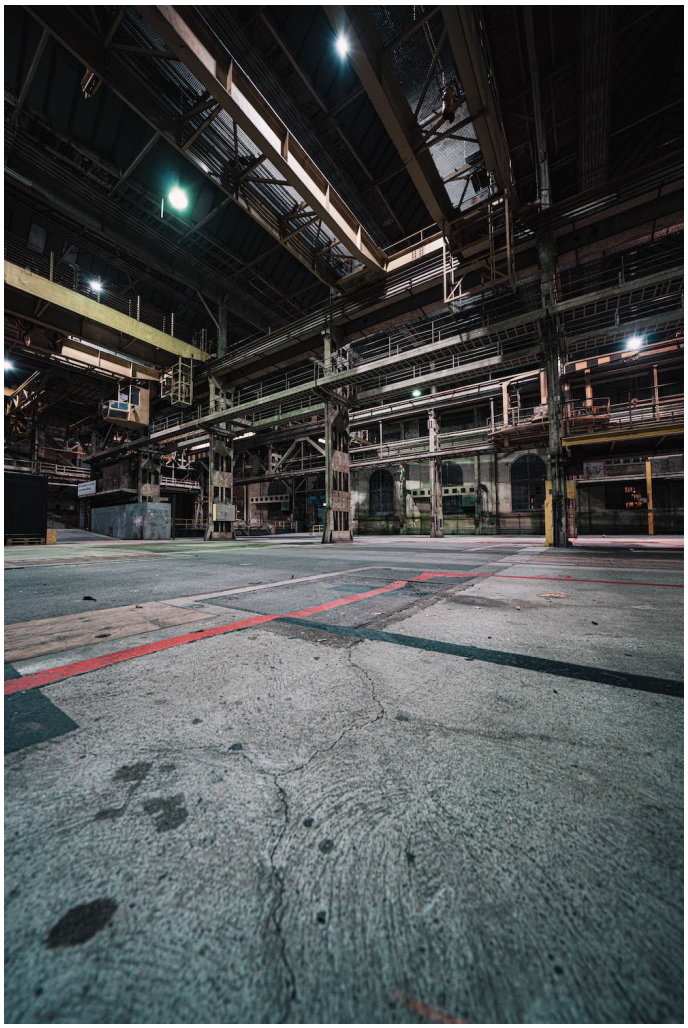
The possibility of planning, developing, and maintaining affordable commercial space to provide consumer amenities and community benefits elevates the need for a governance and public management structure to drive this vision. The City of Newark could transfer ownership of the sites to another quasi-public sector entity such as a redevelopment authority, neighborhood redevelopment district, or a Community Land Trust. A governance entity would be responsible for leading a community planning process to understand needs and envision possible health-oriented uses on the sites. Key stakeholders in a community planning process include residents, small business representatives, and community-based organizations and churches. There is also a need to determine which entities will be charged with redeveloping the land, which may involve a combination of non-profit developers, minority-owned businesses, and other development entities. The redevelopment entity must also have the capacity to play a property management role, holding the land to maintain affordable rents and match potential community uses with available property.

Yet numerous governance and public management questions remain. What entities are best equipped to own, redevelop, and manage affordable industrial space? As in the case of the Brooklyn Navy Yard, the City could remain the owner of the land while transferring property management to a non-profit entity or public authority. Retaining City or non-profit ownership of the land is advantageous because the property does not incur property taxes that are passed down to tenants in the form of higher rents. The entity would also be responsible for a community planning process that engages multiple stakeholders, including residents, industry leaders, higher education and



research institutions, and workforce training organizations, and small business technical assistance organizations. It's crucial that whatever entity is charged with managing the space has strong internal capacity for economic development planning and is well-coordinated with Invest Newark, the city's economic development agency, and other workforce development intermediaries, small business development organizations, and technical assistance organizations. Further, there is a need to determine which entities will be responsible for brick-and-mortar development. Constructing a modern industrial facility is complex and requires a specialized developer that understands the structural characteristics of a modern industrial building, such as ventilation, loading dock angles, and electric wiring for production equipment, among other issues (Urban Manufacturing Alliance, 2019).

3.5 Financing Development



Financing an industrial project that provides below-market rent requires a stack of tax credits, grants, and philanthropic support to make the project financially viable. The cost to redevelop these 10 sites into 8- to 10-story light industrial buildings for advanced manufacturing uses would be extensive. Three sites are on the NJ Department of Environmental Protection Known Contaminated Site list and require significant environmental remediation to make the site safe for use (NJ DEP, 2023). Other anticipated development costs include demolition, community planning, site feasibility analysis, architecture and engineering expenses, and construction. A stack of subsidies would be required to support the project in providing below-market rent to industrial tenants.

The general composition of the capital stack for commercial and industrial development should mirror housing development (65 percent senior debt; 15 percent subordinated debt or gap financing; and 20 percent equity, see **Table 8**). Capital sources for commercial and industrial projects differ based on program requirements. New Jersey Redevelopment Authority's tax-exempt Bond Program targets industrial and commercial projects, (NJRA, 2023). The $100 million program offers below-market

interest rates and issues loans up to $750,000 to non-profits (Ibid). Another state source for senior debt is the NJ Economic Development Authority (NJEDA)'s Standard Assets Repositioning Investments, a $25 million state fund to invest in commercial, industrial, or mixed-use real estate projects to reposition abandoned property (NJ EDA, 2023). Additionally, New Markets Tax Credits, a federal tax incentive program administered by the CDFI Fund, can provide gap financing for commercial real estate projects. Certified community development entities submit proposals to the CDFI Fund to receive credits that can function as equity or flexible loans. Certified entities in New Jersey have received more than $1.4 billion of New Market Tax Credit funds since the onset of the program, including a 2021 allocation of $40 million to New Jersey Community Capital, a regional CDFI loan fund (CDFI Fund, 2023).

Further, projects on brownfield sites that require environmental remediation can seek funding for pre-development costs from NJEDA's Brownfield Incentive Redevelopment Program (NJEDA, 2022). There are five simulated industrial and industrial sites collectively making up nearly 615,000 square feet of land area that are on the NJDEP Known Contaminated Site list at the time of writing. Commercial and industrial projects can receive tax credits for 50 percent of costs or up to $4 million. Funds can be used for a number of pre-development activities, including remediation and demolition (NJEDA, 2023).

3.6 Why is advanced manufacturing right for Newark? Why is affordable industrial space needed to make it happen?

Newark's locational advantages position the city to grow a competitive advanced manufacturing sector that creates business ownership and quality job opportunities for Newark residents. Newark's proximity to the largest port on the East Coast and other major transportation infrastructure – from interstate highways to a national airport – creates a unique competitive advantage for manufacturers (Mistry et al, 2013). Newark is also a state-wide hub for higher education with two major research universities within city limits, positioning advanced manufacturing firms for economic innovation with local knowledge leaders pushing research and development (Ibid).

Although Essex County has a high concentration of advanced manufacturing firms that invest heavily in R&D and create production jobs with above-average wages, few are located in Newark even with the city's locational advantages (Mistry et al, 2013). The 2021 launch of the 60,000 square-foot HAX headquarters established a "hard tech" investment and business startup program in Newark, representing a meaningful first mover in local advanced manufacturing investment (State of New Jersey, 2021). While HAX provides crucial support for start-ups, there is a need to establish a foundation to retain growing firms. Numerous ventures that were established at HAX have outgrown

their space and relocated to other cities in the metro area in search of more affordable rent and greater amenities.[29]

Keeping advanced manufacturing businesses in Newark is crucial to prioritize residents in quality job opportunities and create a local economic culture of innovation. Industrial space in Newark on the real estate market is not oriented toward modern manufacturers that need smaller spaces at an affordable and stable price point. Existing industrial buildings on the rental market often exceed 100,000 square feet or are larger in size (LoopNet, 2023). Industrial rents in Newark are among the most expensive in the metropolitan region. Commercial landlords unconcerned with the economic productivity of the city lack an economic incentive to curate their space for small manufacturers whose buying power is overpowered by large-scale logistics firms. Asking rent for industrial space in Newark ranged from about $19 to $26 per square foot in the first quarter of 2023, which is among the most expensive in the state due to the presence of the port (CBRE, 2023).

Advanced manufacturing can benefit Newarkers by creating living-income jobs that provide benefits and opportunities for career mobility. The average annual wage for all production workers in the New York-Newark-New Jersey Metropolitan Statistical Area is 14 percent higher than the median household income in Newark (Bureau of Labor Statistics, 2021; U.S. Census Bureau, 2021). For production occupations in advanced manufacturing subsectors, average annual wages range between about $57,000 to $77,000 or 37 percent to 86 percent higher than the city's median household income (Ibid).[30] Significant interventions in education policy and investments in workforce development are needed to open local pathways toward technical production jobs. The K-12 education system in the Newark metropolitan area is among the most racially and economically segregated in the country (Potter, 2022). Segregated schools in New Jersey have significantly lower levels of enrollment in subjects that prepare students for STEM jobs, including technical production careers (Campbell, 2023; Kim & Campbell, 2022; Mistry et al, 2013). Investments in physical infrastructure for advanced manufacturing is just one part of the equation – there is need to invest resources in people as well.

[29] Author's interview.
[30] Newark is best positioned to specialize in "support manufacturing" for local industries such as aviation, logistics, maritime, and medical supplies. Examples of production occupations in these manufacturing subsectors are machinists ($56,540 average annual wage), welders ($59,950 average annual wage), aircraft structure, surfaces, rigging, and systems assemblers ($76,960 average annual wage). (Bureau of Labor Statistics, 2021).

Simulation 3: Transform Abandoned Spaces into Green Tools for Climate Resiliency

Born out of generations of public neglect and disinvestment, Newark's built environment and wastewater infrastructure exposes communities to multiple environmental hazards that are only further magnified by the impact of climate change. Impervious buildings and surfaces dominate the urban landscape with patches of trees concentrated in select parks,[31] trapping heat and expelling floodwater by design (Filion et al, 2021). Newark ranks second in the nation for urban heat island intensity[32] (Climate Central, 2021; Filion et al, 2021). Coupling an impervious built environment with nineteenth-century wastewater infrastructure introduces yet another dimension of harm. When water treatment plants exceed capacity[33] -- an increasingly common occurrence due to climate change -- Newark's combined sewage overflow (CSO) system discharges a mixture of untreated domestic sewage, industrial waste, and runoff into the Passaic River, sometimes reaching neighborhood streets and homes (City of Newark, 2023; CD Smith, 2015). Green infrastructure consists of land uses and installations on buildings that mitigate flooding by increasing the porosity of the urban landscape. Green infrastructure should be understood as a multifunctional resource that can benefit range of stakeholders. While mitigating flooding, green infrastructure planning sites can also address crucial environmental, social, and economic needs. As we simulate in the sections that follow, the creative use of city-owned land can help reduce climate threats and strengthen Newark's resiliency. Note that all calculations are based on an assessment of inventory as of June 2023.

4.1 The Scope and Location of Available Parcels

We identified nearly 300 potential green infrastructure sites on non-buildable lots and more than 400 green roofs on existing or simulated buildings that can become new green spaces, capture rainwater, and help create healthier air in Newark's neighborhoods – all on land the city already owns. Green infrastructure effectively aims to turn the city into a "sponge" (Apte, 2017). Small or oddly configured lots that are not suitable for residential or commercial development are prime candidates for siting green infrastructure that can help address multifaceted climate and public health challenges in Newark (U.S. EPA, 2023). Green infrastructure can take various passive and active forms, from community gardens and neighborhood parks to pervious sidewalks and rain baskets. Notably, green infrastructure

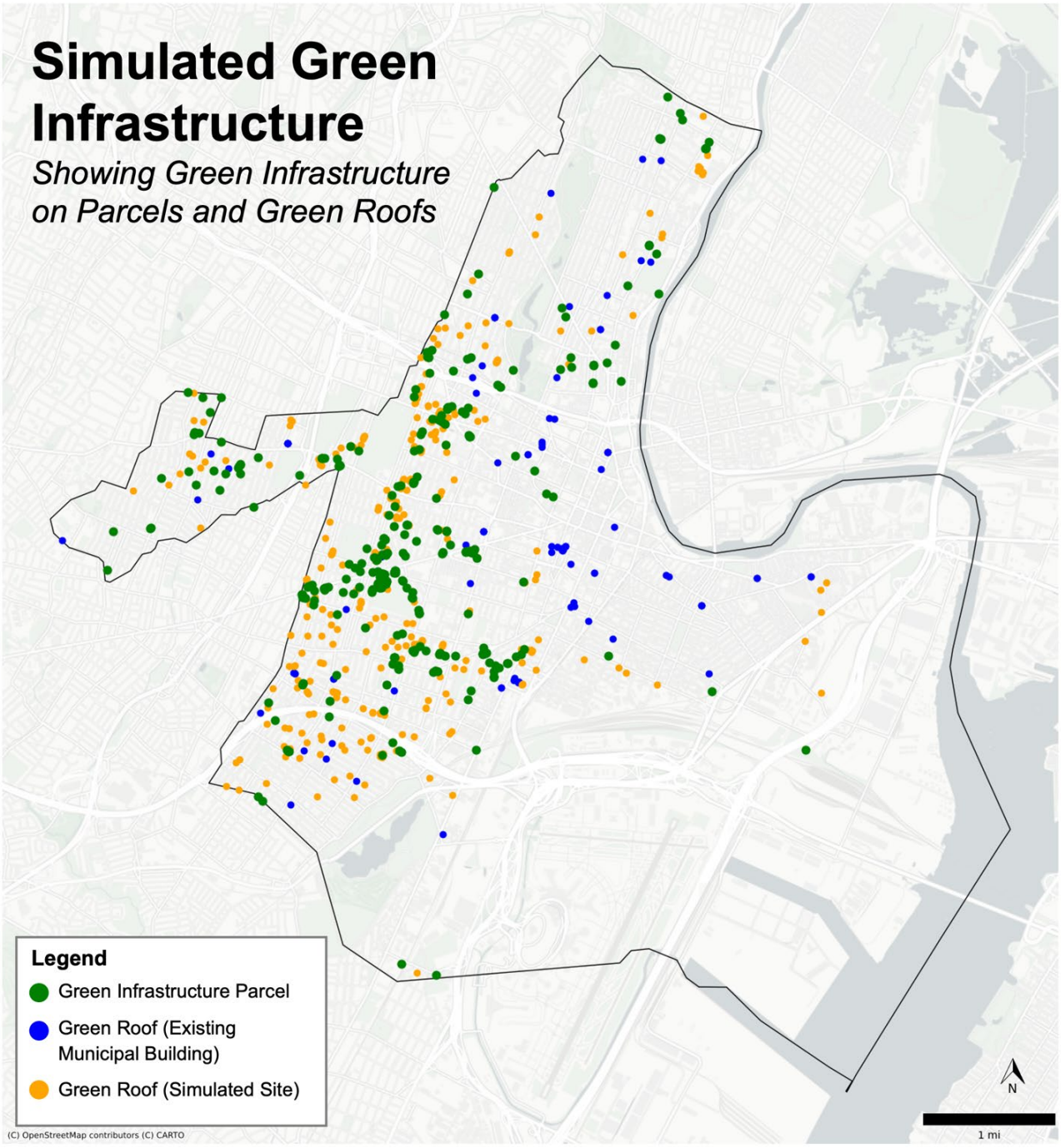
[31] ERI: 42 percent of Newark (11 square miles) is composed of impervious surfaces. Impervious surfaces are concentrated in the Ironbound and Downtown. (Filion et al, 2021).
[32] Land surface temperature estimates referenced here are from July 2020 models and represents a snapshot in time. The urban heat island effect varies seasonally and by the time of day.
[33] A 2015 report commissioned by Together North Jersey estimated that 15 minutes of continuous rainfall or 1 inch of rainfall will trigger combined sewage overflow CSOs (CD Smith, 2015, p. ES-1).

generates environmental, social, and economic benefits beyond addressing flooding. Through intentional design, green infrastructure can serve multiple community stakeholders by improving air quality, creating a more equitable distribution of tree cover, and developing neighborhood green space that enhances quality of life (U.S. EPA, 2023; Monteiro et al, 2020; Nieuwenhuijsen, 2020).

CLiME identified 299 potential parcels for green infrastructure across Newark.[34] Collectively the potential sites cover 17.12 acres of land. These parcels are small in size with a median land area of 2,200 square feet. Most are concentrated in the South, Central, and West Wards -- only five potential sites are located in the East Ward, the most flood-prone area of Newark. Bordering the Passaic River and hosting two in five of the city's combined sewer overflow sites, the Ironbound is particularly susceptible to flooding and combined sewage overflow when stormwater exceeds capacity (NJDEP, 2023). Additional study of these 299 potential sites is required to gauge feasibility and assess the impact on reducing flooding in Newark's most vulnerable communities. Feasibility analyses by the Rutgers Cooperative Extension involves field visits and analysis of aerial imagery to determine whether green infrastructure can adequately absorb runoff (Rutgers Cooperative Extension, 2018). We encourage researchers and the Newark Department of Water and Sewer Utilities to use the City's dataset of city-owned property as an entry point to consider possible sites for the expansion of green infrastructure.

[34] Potential sites for the green infrastructure simulation include vacant or undersized lots with a parcel area of at least 500 square feet.

Figure 16



In addition to potential sites on non-buildable parcels, green infrastructure can also be installed on existing buildings in the form of green roofs. There are 95 municipal buildings city-wide where green roofs can potentially be installed. Further, the first and second simulations on affordable housing and commercial development demonstrated the possibility of building 329 structures on city-owned lots. Green roofs create a layer of vegetation on building rooftops to retain stormwater and

provide cooling effects. An EPA analysis of a green roof program in Kansas City demonstrated that installation on existing buildings significantly reduced stormwater runoff, lowered temperatures to dampen the urban heat island effect, and reduced air pollution associated with heat and ground-level ozone (U.S. EPA, 2018). When planning the development of affordable housing and below-market commercial buildings on city-owned land, there is an opportunity to require green roofs and other forms of green building design to align development with climate resiliency and public health imperatives.

4.2 Examples from the Wards: Flood Mitigation and Public Green Space

To illustrate the disparate threats to Newark neighborhoods, consider the East Ward. **The Ironbound, Newark's densest neighborhood, can benefit from 32 potential green infrastructure sites that could help addresses flooding and the urban heat island effect.** Tree cover in the Ironbound is sparse. Nearly 80 percent of surface area of the Ironbound neighborhood is impervious (NJDEP, 2015). Impervious surfaces, such as sidewalks, buildings, and parking lots, repel water while absorbing and emitting heat, simultaneously contributing to flooding and the urban heat island effect. In the Ironbound, surface temperatures have hit 95 to 106 degrees Fahrenheit during the summer months (Filion et al, 2016). Exposure to extreme heat increases the risk of heat stroke and dehydration and aggravates chronic health conditions such as cardiovascular and respiratory diseases that low-income communities are already predisposed to (National Institute of Health, 2023). Resilient Northeastern New Jersey reported that by 2050 projected increases in heat stress may lead to a 55 percent increase in heat-related mortality in the metropolitan region compared to 1990 levels (Resilient New Jersey, 2022, p. 52). Green infrastructure on parcels and as installations on existing buildings can potentially dampen the urban heat island effect in Newark's densest neighborhood. Prioritizing potential sites that are in or close to areas with high population density would generate the greatest health benefit for Ironbound residents. **Figure 17** shows that about 25 out of 32 potential sites are located in or close to residential areas with higher levels of population density.

There are 95 municipal buildings city-wide where green roofs can potentially be installed.

Figure 17

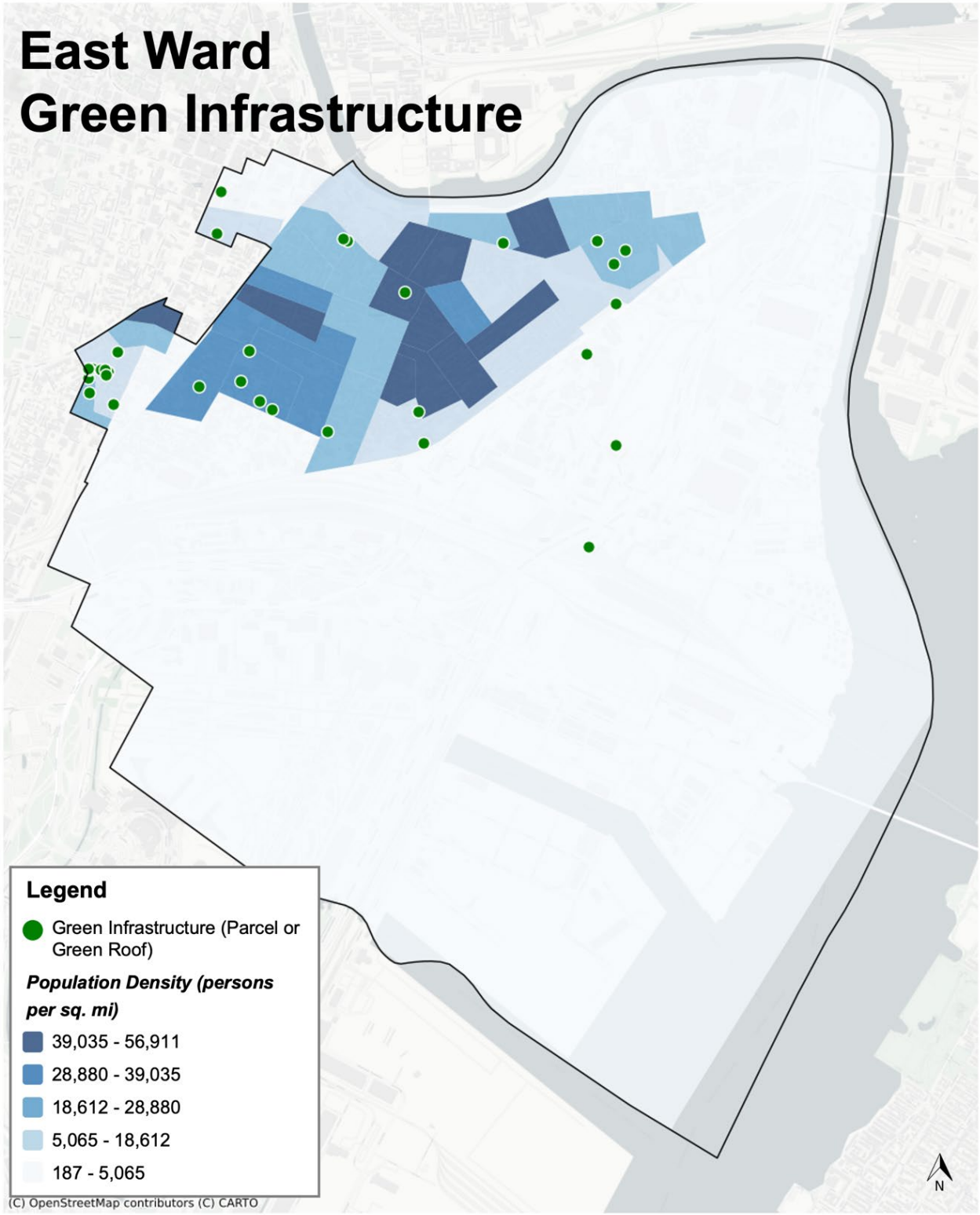

East Ward
Green Infrastructure
Legend
Green Infrastructure (Parcel or Green Roof)
Population Density (persons per sq. mi)
39,035 - 56,911
28,880 - 39,035
18,612 - 28,880
5,065 - 18,612
187 - 5,065
(C) OpenStreetMap contributors (C) CARTO
N

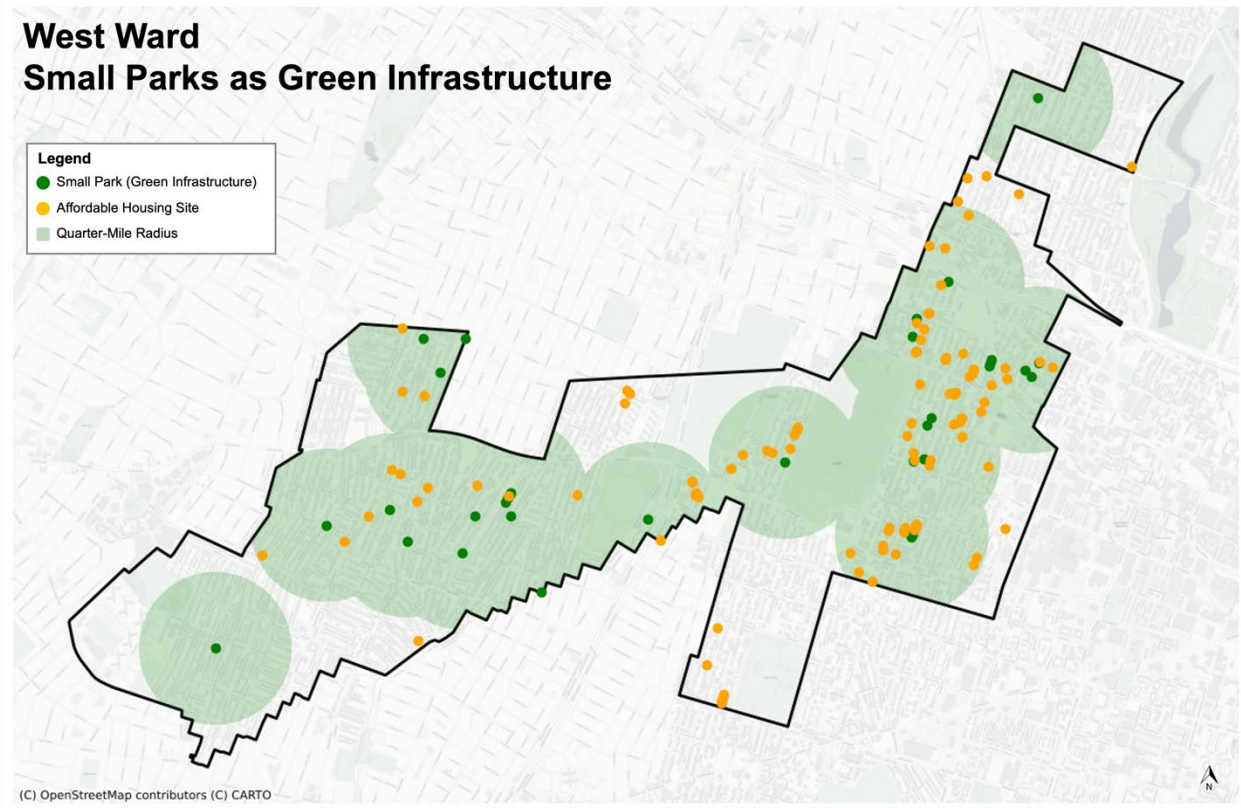
Table 9

East Ward Potential Green Infrastructure Sites	
Site Type	**Count**
Non-Buildable City-Owned Parcel	5
Existing Municipal Building *(Green Roof)*	9
Proposed Affordable Housing *(Green Roof)*	13
Proposed Commercial Development *(Green Roof)*	5
Total Potential GI Sites	**32**

In the West Ward, developing green infrastructure in the form of small parks can serve as a placemaking vehicle that enhances health and quality of life. **In the West Ward, 35 sites suitable for small parks could create 1.6 acres of green space.** These small parks are located in a dense cluster of proposed affordable housing sites from the first simulation. There are 87 proposed affordable housing sites located within a quarter-mile radius of the proposed small parks. All identified sites are at least 1,000 square feet in size and publicly accessible from the street. There is an opportunity to advance a comprehensive community development strategy by linking park development and affordable housing.

Urban gardens and small neighborhood parks are forms of "active" green infrastructure that can contribute placemaking and health benefits for neighborhoods in hand with climate risk mitigation. Small parks that function as green infrastructure fold green space into the everyday urban fabric. Urban green space and community well-being are deeply interconnected (Egorov et al, 2016). Studies have demonstrated that small parks can provide meaningful physical and mental health benefits similar to those more frequently documented in larger parks (Chiesi and Costa, 2022; Wood et al, 2017). Well-maintained parks can create healthy public spaces, improve air and water quality, and elevate property values in distressed neighborhoods, among other social and economic impacts (Harnik & Crompton, 2014).

Figure 18



4.3 Governance Systems for Green Infrastructure

The dataset of city-owned property can aid existing green infrastructure planning initiatives taking place in the city and the broader region. Key organizational stakeholders leading the green infrastructure planning process include the Passaic Valley Sewage Commission, the City of Newark, Newark Water and Sewer, and Rutgers Cooperative Extension. Since 2013, Passaic Valley Sewage Commission has been working with 48 municipalities across five counties to develop and implement stormwater mitigation plans. Rutgers Cooperative Extension has partnered with PVSC and local government to conduct feasibility analyses and lead educational programming and community outreach (for current and past initiatives, see Newark Water and Sewer, 2023; City of Newark, 2018; Rutgers, 2017; CD Smith, 2015). The Passaic Valley Sewerage Commission, the City of Newark, and neighboring municipalities are developing a regional Long Term Control Plan to address combined sewage overflows. Newark DIG documented the installation of seventeen green infrastructure projects citywide from 2013 to 2016 (Newark DIG, 2017). Newark Water and Sewer is currently piloting twelve green infrastructure sites out of 100 proposed total sites (NJEP, 2023; Filion et al, 2021; Newark Water and Sewer, 2023).

The city-owned property dataset can aid current green infrastructure planning initiatives by providing an expanded dataset of potential sites. Green infrastructure impact studies have

demonstrated that intentional site selection can optimize reduction in flooding and combined sewer overflow. A 2015 Nature Conservancy study for the City of Camden analyzed the potential impact of using 125 city-owned lots for green infrastructure to reduce combined sewage outflows (CSO) and mitigate flooding. While modeling indicated that the use of multiple small sites generated "cumulative benefits," the use of optimal sites as opposed to randomly selected sites yielded more than double the volume of CSO and floodwater reduction (Creveling, 2015). Information about the full span of public sites can help stakeholders determine how to optimize stormwater management.

Governance necessarily involves enhanced neighborhood participation. Creating a more prominent role for community planning in green infrastructure development can help Newark neighborhoods reap the multifunctional social and economic benefits of green infrastructure. The community planning process can help inform what form green infrastructure takes so that the additional social and economic benefits are aligned with neighborhood priorities and interests. For example, a community with young children may wish to see a small park that provides recreational opportunities or a space with outdoor art to create shared green space in the neighborhood. Key stakeholders in a community planning process include residents, community-based organizations and faith institutions, and small business representatives. Community planning can be a step on the green infrastructure planning process. Alternatively, creating a role for Community Planning Boards in the land use review process can create a direct role for Newark residents to shape development decisions in their neighborhoods. Section four provides a more detailed description of the mechanics of Community Planning Boards.

Beyond these considerations of institutional expertise and community participation remain basic questions about what kind of entity would be responsible for overseeing policy implementation. A comprehensive assessment of the kinds of specific organizations cities form in order to implement environmental planning requires a more searching legal inquiry beyond the scope of this simulation. However, we refer the reader to the earlier discussion of governance in the affordable housing simulation. There we made two relevant points. First, the City may already have agencies or divisions within existing departments that can take on these functions. Second, if no current entity exists, some of the new entities we proposed in the housing context might apply in the environmental—namely, a dedicated environmental redevelopment authority and community land trusts.

4.4 Financing Green Infrastructure Development

Newark should look to various sources of federal, state, and private funding to finance the need for extensive green infrastructure development in the city. The U.S. EPA's 319 Nonpoint Source Program provides grants to states to address pollution from stormwater runoff. Additionally, the agency's Urban Waters Small Grants Program (UWSG) provides grant funding for programs that improve urban water quality while promoting neighborhood revitalization (Georgetown Climate Center, 2023). Funds from the U.S. Department of Housing and Urban Development (HUD)'s Community Development Block Grant (CDBG) program can also be used for green infrastructure development under certain conditions where projects support neighborhood revitalization and increase property values. The Department of Energy's Weatherization and Intergovernmental Program can fund building retrofit projects for green roof installation and green building design. Additionally, FEMA has numerous pre- and post-disaster hazard mitigation grant programs that can support green infrastructure development, such as the Building Resilient Infrastructure and Communities (BRIC) program (U.S. EPA, 2023). Additional federal grant programs that can be used to fund green infrastructure development are too numerous to list here (see U.S. EPA, 2023).

At the state level, the New Jersey Environmental Infrastructure Financing Program (NJEIFP) is a major source of funding for green infrastructure development. The New Jersey Department of Environmental Protection (NJDEP) and New Jersey Environmental Infrastructure Trust jointly administer low-cost financing to support the design, construction, and implementation of projects that improve water quality (NJ Environmental Infrastructure Financing Program, 2017). The program's funding is derived from a combination of Federal State Revolving Fund capitalization grants and borrowed funds through revenue bonds (Ibid). From 2018 to 2022, the program has provided more than $2.2 billion of low-cost loans statewide. There are currently five active clean water projects in Newark administered by the City of Newark and the Passaic Valley Sewerage Commission (NJDEP, 2023).

Conclusion & Policy Recommendations

This report reflects a partnership between a university research center and a city government as well as an experiment in public scholarship. Most U.S. cities own some property that does not have a municipal use. Most face challenges providing enough affordable housing, stimulating wealth and job creation through business development and dealing with the unpredictable and unprecedented effects of climate change. Newark is different only in the relatively large amount of land it owns and the urgency of need among its lower-income residents. The City required a clearer picture of its inventory. This report began as a project to increase the City's property data organization and interpretation capacity. We then showed through three simulations how the property in the City's inventory could be a critical tool in advancing policies to build affordable housing, economic development and green infrastructure. The goal was not to offer all the answers but to present research that promotes better questions and deeper discourse. We conclude with the following policy recommendations.

1. **Build institutional capacity for data literacy within and across local government, civic organizations, and educational institutions to support civic engagement with city policy.**
   - Resource data infrastructure at City Hall by investing in training for staff, hiring additional staff where there are gaps in key roles, and investing in hardware and software that enables effective and secure data integration across departments.
   - City government should commit to a high standard of transparency and accessibility for users inside and outside of government. Select datasets, such as the dataset of city-owned property, should be published on a regular basis with an accompanying data user guide that helps the public understand what the fields and values represent.
   - Establish programming to create and sustain cross-sectoral partnerships between civic organizations, educational institutions, and city government to promote a civic culture of data literacy. Examples of programming include class projects and studios with schools and universities; partnerships between civic organizations and city government; public events and conferences such as "Open Data Week"; and interdisciplinary data literacy trainings for staff in city government and civic organizations.

Rationale:

This project originated as a collaboration between CLiME and the City of Newark's Department of Economic and Housing Development to build the City's capacity for data management and analysis. Our initiative represents one step in a much larger transformation that is needed to reorient how the City of Newark, local civic organizations, and the public engage with city-generated data and urban policy.

Newark needs a cross-sector data literacy initiative to improve how the City and the public engage with data to develop, implement, and evaluate urban planning and policy.[35] If data was left to data analysts and technologists alone, Newark would risk minimizing its democratic potential. Public administrators in local government, civic institutions, and residents all have important roles to play as users of city-generated data.

City government needs adequate resources in the form of staff and information technology infrastructure. There is also a need to establish institutional norms for data production, management, and analysis grounded in collaborative workflows between public administrators, data scientists, and information technology professionals to ensure that data is accurate, reliable, and accessible for users inside and outside of local government.

Educational institutions and civic organizations that engage youth and adults should train and empower all residents to become responsible data users who can interpret, process, and question public data. Educators and civic leaders can guide participants in understanding why reading and working with data is relevant to their daily lives and the challenges facing their community.

Members of the public can exercise data literacy through advocacy, civic engagement, and when interfacing with government services. Using data to build or question a narrative during a public forum is an example of how data is embedded in everyday practices of civic engagement.

2. **Maximize the use of city-owned land as a public resource for affordable housing.**
   - 100 percent of city-owned land suitable for residential uses should be dedicated to affordable housing at Newark income levels.
   - Institute 99-year affordability restrictions on affordable housing constructed on city-owned land, most likely in the form of deed restrictions. Establish mechanisms within city government or a municipal redevelopment authority to oversee compliance with affordability restrictions.
   - Align affordable housing development with community needs by creating housing with varying forms of tenure (limited equity cooperative, owner-occupied, rental) and of larger sizes to accommodate families of all kinds.

[35] Data literacy is a multifold and involves several capabilities – in some contexts, select skills may be more applicable than others. Data literacy involves "reading data" (understanding how data represents the world); "working with data" (acquiring and processing data); "analyzing data" (describing, aggregating, and manipulating); and "arguing with data" (using data to construct a narrative) (D'Ignazio and Bhargava, 2016).

Rationale:

City-owned land is a public resource, and its use should be maximized to generate the greatest public value. Requiring all housing constructed on city-owned land be made affordable to moderate- and low-income Newark residents would expand the city's affordable housing stock. Further, expanding the duration of affordability requirements would significantly increase the total number of Newark households served over time. Finally, it is crucial that the characteristics and design of housing (e.g., form of tenure, size, rate of rent) aligns with the needs and income levels of Newark residents.

3. **Leverage city-owned land as a channel for equitable economic development.**
   - On city-owned lots suitable for mixed-use development, create first floor commercial space with below-market rents to support tenant businesses that provide healthcare and other essential consumer amenities. The municipal redevelopment authority or other entity managing commercial space should strategically curate a mix of businesses that aligns with neighborhood needs. Locally owned businesses that employ Newark residents in quality jobs should be prioritized as tenants.
   - Redevelop industrially zoned lots into light industrial space for advanced manufacturing, design, and technology businesses. The managing entity should have in-house expertise to curate a space that attracts and retains multisectoral clusters of high-tech production and design businesses.
   - Establish a rubric to set below-market rental rates that proportions subsidies in relation to demonstrable community benefits and prioritizes businesses owned by Newark residents.
   - Invest Newark and small business technical assistance intermediaries should coordinate with the managing entity to connect emerging local entrepreneurs with real estate opportunities that help them seed and expand their business.
   - Connect commercial and industrial redevelopment opportunities to equitable workforce development goals. The managing entity of light industrial space should partner with workforce development intermediaries to prepare the Newark workforce for quality jobs in the advanced manufacturing, design, and technology sectors. Workforce intermediaries could have an on-site office, work with tenant businesses to hire Newark residents, and partner with tenants to establish apprenticeships and other training programs that prepare Newark residents for career opportunities.

Rationale:

CLiME's simulation of redevelopment on commercial and industrial-zoned land demonstrated that there are opportunities to redevelop up to 21 acres of commercial and

industrial land. Transferring ownership of the land to a redevelopment authority or other entity with capacity to strategically curate commercial space can potentially create economic benefits for Newark in the form of local jobs and business ownership opportunities. Generating economic benefits for Newark residents would require close and effective coordination with small business development and workforce intermediaries to connect Newark businesses to suitable space and prepare workers for quality job opportunities.

4. **Creatively use non-buildable lots for green infrastructure to support climate resiliency and community development.**
   - Use lots that are not suitable for residential or commercial development as potential sites for green infrastructure. The city should commission feasibility studies to refine the list of potential sites that can effectively absorb runoff. Additionally, the city needs to commission an impact analysis to quantify how potential sites could reduce flooding volume, reduce combined sewage overflow volume, and generate other public health benefits such as improved air quality and lowered surface temperature.
   - Use green infrastructure planning as a vehicle for neighborhood placemaking and community development. Residents should have a voice in determining what form green infrastructure should take in their neighborhood to align green infrastructure with community needs. For example, neighborhoods with young families may wish to see playgrounds with pervious sidewalks; a neighborhood with limited access to grocery stores may desire urban agriculture on their block; others may wish to see sites used as space for public art to express and build connection to place.

5. **Establish governance systems to create community leadership roles in the disposition and management of city-owned land.**
   - Establish Community Planning Boards to create a leadership role for Newark residents in redevelopment decisions affecting city-owned land in their neighborhoods.
   - Transfer ownership of clusters of residential, mixed use, and green space property to a Community Land Trust to preserve long-term affordability and establish a governance system with board leadership roles for tenants, neighborhood residents, and civic leaders.
   - Create a strategic plan to convey property from the City to the Newark Land Bank.
   - Establish a municipal redevelopment authority -- within or independent of Invest Newark – to efficiently and equitably manage the redevelopment of multifamily residential, mixed-use, and industrial property at scale.

Rationale:

CLiME's simulations have demonstrated that there is potential city-owned land at a substantial scale that encompasses up to 27.1 acres of land for affordable housing, 21.3 acres of land for commercial and industrial development, and 17 acres of land for green infrastructure. Redevelopment at this scale begs the question of who makes decisions about the use of public resources. How can available public assets be optimally aligned with a range of pressing community needs? It is crucial to create leadership roles for Newark residents in redevelopment planning on city-owned land to ensure that residents have a voice over changes in their neighborhoods. Governance entities such as Community Planning Boards and Community Land Trusts that create leadership roles for neighborhood residents and for tenants are compelling models that elevate neighborhood decision-making.

Further, CLiME's simulations raise the question as to what entities are best equipped to carry out redevelopment and management of city-owned property. Governance of public assets should be effective and efficient. Newark could establish a centralized body in the form of a municipal redevelopment authority -- that is either housed in or separate from Invest Newark – to streamline redevelopment processes and align property management with public goals.

6. **Organize capital to enable the redevelopment of city-owned land at scale.**
   - Establish a bridge fund dedicated to supporting the redevelopment on city-owned land in Newark. The fund can be sourced by a mix of public and private grants alongside patient investment capital. The bridge fund should be administered by a local CDFI or other financial entity with capacity fundraising, underwriting, and oversight.

Rationale:

There are numerous established public and private sources of senior debt to finance pre-development and development costs. Senior lenders – namely, banks, regional and national CDFIs, and select state agencies with loan products – have capacity to issue loans in large volumes, but will typically issue loans that cover 65 percent of the cost of the project. Creating a bridge fund dedicated to redevelopment projects on city-owned land in Newark would help the City leverage these senior debt capital sources and close the financing gap.

Acknowledgments

This report was made possible by the myriad resources and contributions of others. First, we'd like to thank Newark's Mayor Ras Baraka and Deputy Mayor Allison Ladd for their time and generous partnership during the many collaborative months of information gathering and analysis. Many Newark City staff were particularly instrumental in the work, including Keith Hamilton, Michael Lewis, Aondrette Christian, Chigoziri Nwoke, Dwayne Middleton, Jerrah Crowder, Mercedes Calhoun, Beatrice Bellamy, Agbon Edomwonyi, and Jay Lee. At Rutgers, we are grateful for the support of Professors Kathe Newman, Eric Seymour, Peter Hepburn and others who acted as peer reviewers of many of the ideas developed here. Special thanks to CLiME Fellow Jonathan Rawson for his excellent and timely legal research. Katie Sferra, CLiME's Program Coordinator, was patient and invaluable in supporting the work and formatting the publication. Many community reviewers took time out to comment on early drafts, especially Aisha Glover, Joseph Della Fave and Richard Cammarieri. Invest Newark staff, including Marcus Randolph and Martha Baez, generously shared their insights. CLiME work is always informed by the wisdom of our community partners on the Newark Equitable Growth Advisory Commission as well as the Newark Community Development Network.

CLiME could not produce this research without the support of the State of New Jersey. We are also and always indebted to the unyielding support and matchless wisdom of Rutgers University-Newark's Chancellor Nancy Cantor, who actually came up with the idea to embed a brilliant CLiME Senior Research Fellow in Newark City Hall. That brilliant Senior Research Fellow was Elana Simon, who devoted her tireless creativity and principled determination to a far more ambitious effort than any of us could imagine. This is primarily her research. All mistakes are CLiME's.

References

Anderson, D. (2022, March 2). "The Typical U.S. Home Changes Every 13.2 Years." Redfin. Retrieved from: https://www.redfin.com/news/2021-homeowner-tenure/

Apte, P. (2017). "How to Build a City That Doesn't Flood? Turn it Into a Sponge City." JSTOR Daily Science & Technology. https://daily.jstor.org/build-a-city-that-doesnt-flood/

Babalis, D. (2020). A new typology of pocket parks: inspiring small spaces for changing cities. *Proceedings of the Institution of Civil Engineers – Urban Design and Planning* 173(3): 108-117, https://doi.org/10.1680/jurdp.19.00018

Bay Area LISC. (2023). "Partnership for the Bay's Future." Retrieved from: https://www.lisc.org/bay-area/areas-of-work/affordable-housing/partnership-bays-future/

Brooklyn Navy Yard. (2023). "Job Opportunities with Yard Businesses." Retrieved from: https://brooklynnavyyard.org/employment-center/jobs-with-yard-businesses

Bureau of Labor Statistics. (2021, May). May 2021 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates. Retrieved from: https://www.bls.gov/oes/special-requests/oesm21ma.zip

Campbell, V. (2022, July). Equal Access to STEM Pathways? A Closer Look at Science Course-taking Trends in New Jersey's High Schools. New Jersey Policy Lab & Joseph C.Cornwall

Center for Disease Control. (2018). CDC Social Vulnerability Index Documentation. Retrieved from: https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html

CBRE. (2023, April18). NJ Market Posts Strong Start to 2023 As Economic Uncertainty Builds. *Northern and Central New Jersey Industrial | Q1 2023.* Retrieved from: https://mktgdocs.cbre.com/2299/af606042-902c-43ec-b74e-4e88a4ed7278-502563488.pdf

CDFI Fund. (2023). "New Jersey Award History." https://www.cdfifund.gov/awards/state-awards/state-results/New%20Jersey

CD Smith. (2015, March 20). Newark Greenstreet Initiative. Planning & Implementing Green Stormwater Infrastructure. Together North Jersey.

City of Newark. (2023). "About Our Sewer System." Newark Water & Sewer. Retrieved from: https://waterandsewer.newarknj.gov/customer-resources/about-our-sewer-system%20%20

City of Newark. (2023, May 5). "Mayor Baraka Announces Council Passage of Program to Enable Low-Cost Sales Of City-Owned Properties To Longtime Residents And Selection of NACA As The First Program Administrator." Retrieved from: https://www.newarknj.gov/news/mayor-baraka-announces-council-passage-of-program-to-enable-low-cost-sales-of-city-owned-properties-to-longtime-residents-and-selection-of-naca-as-the-first-program-administrator

City of Newark. (2023, April 3). "NZLUR Update – Land Use Element Phase 2." Newark 360. Retrieved from: https://drive.google.com/drive/u/0/folders/1waiadnP2cE5SzWvJcyIXeXRiHFfRrhEF

City of Newark. (2023, March 23). "Chapter 41: AO Zoning and Land Use Adopting Ordinance – Draft." Retrieved from: https://drive.google.com/drive/u/0/folders/1waiadnP2cE5SzWvJcyIXeXRiHFfRrhEF

City of Newark. (2023, January 19). "Mayor Baraka Announces Passage of Ordinance to Require Deed Restrictions to Ensure that Formerly City-Owned Properties Remain Affordable." Retrieved from: https://www.newarknj.gov/news/mayor-baraka-announces-passage-of-ordinance-to-require-deed-restrictions-to-ensure-that-formerly-city-owned-properties-remain-affordable

City of Newark. (2022, December). The Path Home: Collaborating Across Our Community. A Strategic Plan to End Chronic Homelessness in Newark. https://drive.google.com/file/d/1xUri_vHtNw488XFRzZJm-Y82iQ4owFFj/view

City of Newark. (2022, March 9). "Mayor Baraka Proposes Changes To Inclusionary Zoning Ordinance In Order To Create Additional Affordable Housing." https://www.newarknj.gov/news/mayor-baraka-proposes-changes-to-inclusionary-zoning-ordinance-in-order-to-create-additional-affordable-housing

City of Newark. (2020, March 5). "Mayor Baraka Hails Council Vote in Favor of Newark Land Bank Agreement." Retrieved from: https://www.newarknj.gov/news/mayor-baraka-hails-council-vote-in-favor-of-land-bank-agreement

City of Newark. (2021, August 9). Newark Housing Goals. Retrieved from:

https://www.newarknj.gov/news/newark-housing-goals-announcement-booklet

City of Newark. (2020). Newark 360 Master Plan. Retrieved from: https://ehq-production-us-california.s3.us-west-1.amazonaws.com/d47793212a915755d82fa472ea5d05971a52f1e3/original/1664293182/6d10cb1dc1de06254cf220e30c70515c_Newark360_FINAL_PLAN_reduced.pdf?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=AKIA4KKNQAKICO37GBEP%2F20230512%2Fus-west-1%2Fs3%2Faws4_request&X-Amz-Date=20230512T231624Z&X-Amz-Expires=300&X-Amz-SignedHeaders=host&X-Amz-Signature=3c35f7b37639e28084022 9f75e71a008a0b0d6b12468f24311ecb59629ebd63c

City of Newark. (2018). Combined Sewer Overflow (CSO) Pollution Prevention Plan. https://drive.google.com/file/d/16d7G4yHuhuH4YxpAMzz-1BlByh42wQ-0/view

City of New York. (2023). "About Community Boards." Retrieved from: https://www.nyc.gov/site/cau/community-boards/about-commmunity-boards.page

City of New York Department of City Planning. (n.d.). "Uniform Land Use Review Procedure." Retrieved from: https://www.nyc.gov/assets/planning/download/pdf/applicants/applicant-portal/lur.pdf

Climate Central. (2021, July 14). Hot Zones: Urban Heat Islands. Retrieved from: https://www.climatecentral.org/climate-matters/urban-heat-islands

Creveling, E. (2015). Neighborhood-Wide Green-Infrastructure Planning: A Pilot Study to Optimize Stormwater Management Benefits for Camden. The Nature Conservancy. Retrieved from: https://www.newarkdignj.org/_files/ugd/dd1d61_4e8e14569da54c40b182466b1e2656ea.pdf

Ehlenz, M. (2018). Making Home More Affordable: Community Land Trusts Adopting Cooperative Ownership Models to Expand Affordable Housing, *Journal of Community Practice*, 26:3, 283-307, DOI: 10.1080/10705422.2018.1477082

Egorov, A.I., Mudu, P., Braubach, M., & Martuzzi, M. (2016). Urban Green Spaces and Health: A Review of Evidence. World Health Organization. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/345751/WHO-EURO-2016-3352-43111-60341-eng.pdf?sequence=1&isAllowed=y

Federal Reserve Bank. (2021). Small Business Credit Survey: 2021 Report on Firms Owned by People of Color. Retrieved from: file:///Users/elana/Downloads/sbcs-2021-report-on-firms-owned-by-people-of-color-1.pdf

Feldman, M., & Lowe, N. (2017). Evidence-based economic development policy. *Innovations: Technology, Governance, Globalization*, *11*(3-4), 34-49.

Filión, N, Erwin, N., Bowers, R., and I. Gorski Steiner. (2021, April). Environmental Resources Inventory. City of Newark, Department of Economic & Housing Development. Retrieved from: https://data-newgin.opendata.arcgis.com/documents/b8d1365a87384131affeca57c8251ee9/explore

Georgetown Climate Center. (2023). Green Infrastructure Toolkit. Retrieved from: https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/introduction.html

Hamer, G. (2023, March 16). Partnerships and Federal Funding Build an Oasis in a Food Desert. *Planning Magazine*. https://www.planning.org/planning/2023/winter/partnerships-and-federal-funding-build-an-oasis-in-a-food-desert/?_hsmi=261507267&_hsenc=p2ANqtz-8rfBpLIy5C3F9LeS843BSkEHWaFly3YylJUh8Lc_bZwxsCkDcZKIeeRsIWikM_45PYz-_HJgnb8phbhoojmrXQWqQxmg

Grounded Solutions Network. (2019). "Affordability Preservation." Retrieved from: https://inclusionaryhousing.org/designing-a-policy/affordability-preservation/

Haverkamp, B. and Eckenwiler, L. (2022). Health Equity: A Case for Ethical Placemaking. *Planning Theory & Practice*. Vol. 23, No. 5, 801-806. https://doi.org/10.1080/14649357.2022.2147338

Kim, E.C. & Campbell, V. (2022). Disparities in High-Leverage Mathematics Course-Taking in New Jersey, 2016-2020. New Jersey State Policy Lab & Joseph C. Cornwall Center for Metropolitan Studies. https://rutgers.app.box.com/s/7vengw27ln2pm78kiscq1bxgoub3j7io

Lowe, J., Prochaska, N., and W. Dennis Keating. (July 2022). "Bringing permanent affordable housing and community control to scale: The potential of community land trust and land bank collaboration." *Cities.* Vol 126.

LoopNet. (2023). "Newark Industrial Space for Lease." Retrieved from: http://loopnet.com

Lubell, J. (2013). "Filling the Void Between Homeownership and Rental Housing: A Case for Expanding the Use of Shared Equity Homeownership." Joint Center for Housing Studies, Harvard University.

Metropolitan Council. (2016, November). "Measuring Employment." *Local Planning Handbook*. Retrieved from: https://metrocouncil.org/Handbook/Files/Resources/Fact-Sheet/ECONOMIC-COMPETITIVENESS/How-to-Measure-Employment-Intensity-and-Capacity.aspx

Microsoft Maps. (2018). "Computer Generated Building Footprints for the United States." Retrieved from: https://github.com/microsoft/USBuildingFootprints

Mistry, N., Vey, J.S., Shearer, R. (2013). Newark's Manufacturing Competitiveness: Findings and Strategies. Retrieved from: https://www.brookings.edu/wp-content/uploads/2016/06/NewarkManufacturingMay28.pdf

Mitchell-Lama Residents Coalition. (n.d.). *Legislative History of the Mitchell-Lama Buy-Out Provision*. Retrieved from: http://www.mitchell-lama.org/history.html

Moe, L. & Garneva, A. (2021, March). NYC's Workforce Development Organizations: Resilient through COVID and Essential for Economic Recovery. New York City Employment and Training Coalition and Center for New York City Affairs at The New School. Retrieved from: https://nycetc.org/wp-content/uploads/2021/05/NYCETC_CNYCA_Report_Workforce_Organizations_Covid_19_FINAL.pdf

Monteiro, R. Ferreira, J.C., & P. Antunes. (2020). Green Infrastructure Planning Principles: An Integrated Literature Review. *Land*, Vol. 9, 525. https://doi.org/10.3390/land9120525

National Institute of Health. (2023). "Temperature-related Death and Illness." Retrieved from: https://www.niehs.nih.gov/research/programs/climatechange/health_impacts/heat/index.cfm

National Low Income Housing Coalition. (2022). "Low-Income Housing Tax Credits." Retrieved from: https://nlihc.org/sites/default/files/2022-03/2022AG_5-02_LIHTC.pdf

Nelson, K. & D. Troutt. (2021, February). *Homes Beyond Reach: An Assessment and Gap Analysis of Newark's Affordable Rental Stock*. Center on Law, Inequality, and Metropolitan Equity, Rutgers University-Newark. https://www.clime.rutgers.edu/publications-filtered/homes-beyond-reach-an-assessment-and-gap-analysis-of-newarks-affordable-rental-stock

Newark Alliance. (2023). "Newark 2020." https://www.newark2020.com/

Newark DIG. (2017). "About Newark DIG." Retrieved from: https://www.newarkdignj.org/about

New Jersey Economic Development Authority. (2023). "Brownfields Redevelopment Incentive." Retrieved from: https://www.njeda.gov/brownfield-redevelopment-incentive/

New Jersey Economic Development Authority. (2023). Stranded Assets Repositioning Investments. https://www.njeda.gov/stranded-assets-repositioning-investments/

New Jersey Department of Environmental Protection. (2023). Water Infrastructure Spending Dashboard – State Fiscal Year 2023 Clean and Drinking Water Investments. https://www.nj.gov/dep/wiip/dashboard.html

New Jersey Department of Environmental Protection Bureau of GIS. (2023, May 4). Brownfield Inventory for New Jersey. Retrieved from: https://gisdata-njdep.opendata.arcgis.com/datasets/njdep::brownfield-inventory-for-new-jersey/explore?location=40.150929%2C-74.765750%2C9.75

New Jersey Department of Environmental Protection Bureau of GIS. (2023, May 3). Combined Sewer Overflow (CSO) for New Jersey. Retrieved from: https://njogis-newjersey.opendata.arcgis.com/datasets/25bace29e8114519b2d08d04c75873f3_0/explore?location=40.673176%2C-74.167340%2C12.43

New Jersey Department of Environmental Protection Bureau of GIS. (2023, April 5). State, Local and Nonprofit Open Space of New Jersey. Last updated April 12, 2023. Retrieved from: https://njogis-newjersey.opendata.arcgis.com/datasets/njdep::state-local-and-nonprofit-open-space-of-new-jersey/explore?location=40.727066%2C-74.179165%2C13.00

New Jersey Department of Environmental Protection. (2023, March 6). Long Term Control Plans. https://www.nj.gov/dep/dwq/cso-longtermplans.htm

New Jersey Department of Environmental Protection Bureau of GIS. (2015, February 17). Impervious Surface of New Jersey from Land Use/Land Cover 2012 Update. Last updated May 26, 2020. Retrieved from: https://njogis-newjersey.opendata.arcgis.com/documents/njdep::impervious-surface-of-new-jersey-from-land-use-land-cover-2012-update-download/about

New Jersey Environmental Infrastructure Financing Program. (2017). Funding Water Infrastructure for New Jersey. https://www.nj.gov/dep/dwq/pdf/NJEIFP_Funding_Booklet20170517.pdf

New Jersey Department of Community Affairs. (2023). Affordable Housing Trust Fund. Retrieved from: https://www.nj.gov/dca/dhcr/offices/ahtf.shtml

New Jersey Housing Mortgage Finance Agency. (2023). "General Info for Multifamily Developers." https://www.nj.gov/dca/hmfa/developers/multifamily/generalinfo/index.shtml

New Jersey Redevelopment Authority. (2023). Project Financing. Retrieved from:

https://www.njra.us/project-financing

Nieuwenhuijsen, M.J. (2020). Green Infrastructure and Health. *Annual Review of Public Health.* Vol. 42:317-328.

Nguyen, T., Ngo, H. H., Guo, W., Wang, X.C., Ren, N., Li, G. Ding, J. and Liang, H. (2019). Implementation of specific urban water management – Sponge City. *Science of the Total Environment,* Vol. 652, 20. P. 147-162.

Okafor, K. (2022). Community Ownership in New York City: The Housing Development Fund Corporation. *NYU Environmental Law Journal*, *30*, 413–492.

Peterson, J.R. (1969). "Vest-Pocket Parks in Halem" in *Small Urban Spaces: The Philosophy, Design, Sociology, and Politics of Vest-Pocket Parks and Other Small Urban Open Spaces.* Ed. Whitney North Seymour, Jr. New York: New York University Press. (p. 123-137)

Potter, H. (2022). "School Segregation in U.S. Metro Areas." https://tcf.org/content/report/school-segregation-in-u-s-metro-areas/

Resilient New Jersey. (2022, June). Climate Hazards Assessment. Retrieved from: https://www.resilient-nj.com/wp-content/uploads/2022/11/RNJ_NENJ_Climate_Hazards_Assessment_Report_print_20221031.pdf

Rigolon, A. (2016). A Complex Landscape of Inequity in Access to Urban Parks: A Literature Review. *Landscape and Urban Planning*. 153, 160-169.

Rutgers Cooperative Extension Water Resources Program. (2018). Impervious Cover Reduction Action Plan for Newark, Essex County, New Jersey – Volume 2. http://water.rutgers.edu/Projects/SURDNA/RAP/Newark_RAP_V2_DRAFT.pdf

Rutgers New Jersey Agricultural Experiment Station and Newark DIG. (2017). Green Infrastructure Opportunities in Newark. Retrieved from: http://water.rutgers.edu/Projects/Newark/Newark/index.html

Self-Help Credit Union. (2023). "Durham Affordable Housing Loan Fund." Retrieved from: https://www.self-help.org/business/loans/all-business-loans/durham-affordable-housing-loan-fund

Shi, L, Regan, J. Politzer, R. & Luo, J. (2001). Community Health Centers and Racial/Ethnic Disparities in Healthy Life. *International Journal of Health Services,* Vol. 31, Number 3. P. 567-582.

Singh, L. and White, E. (2019). The Racial Wealth Divide in Newark, NJ. Prosperity Now.

Retrieved from:
https://prosperitynow.org/sites/default/files/resources/RWD_NEWARK_Profile.pdf

Saegert, S., & Winkel, G. (1998). Social capital and the revitalization of New York City's distressed inner-city housing. *Housing Policy Debate*, 9(1), 17–60. https://doi.org/10.1080/10511482.1998.9521285

Scott, J. (1998). *Seeing Like a State*. New Haven: Yale University Press.

State of New Jersey, Office of the Governor. (2021, Sept. 16). "Governor Murphy Announces Agreement to Establish U.S. Headquarters in Newark for the HAX Startup Development Program Focused on Industrial Tech and Decarbonization." Retrieved from:
https://www.nj.gov/governor/news/news/562021/20210916c.shtml

Thaden, E. & Lowe, J. (2014). Resident and Community Engagement in Community Land Trusts. Lincoln Institute of Land Policy Working Paper.
https://www.lincolninst.edu/sites/default/files/pubfiles/2429_1774_thaden_wp14et1.pdf

Trust for Public Land. (2022). Policy Brief: Greenspace. Retrieved from:
https://www.cityhealth.org/wp-content/uploads/2021/10/Policy-Brief-Greenspace.pdf

Trust for Public Land. (2022). Newark, NJ – 2022 ParkScore Index. Retrieved from:
https://parkserve.tpl.org/customranking/?3451000

U.S. Census Bureau. (2019). American Community Survey, 5-Year Estimates.

U.S. Department of Agriculture (2021). USFS Tree Canopy Cover Datasets.
Retrieved from: https://data.fs.usda.gov/geodata/rastergateway/treecanopycover/

U.S. Department of Agriculture. (2019) Food Access Research Atlas.
https://www.ers.usda.gov/data-products/food-access-research-atlas/

U.S. Department of Housing and Urban Development (2012). HOME and CDBG Guidebook.
https://files.hudexchange.info/resources/documents/HOME-CDBGGuidebook.pdf

U.S. Energy Information Administration. (2018). 2018 Commercial Buildings Energy Consumption Survey – Table B2. Summary Table: Totals and Median of Floorspace, Number of Workers, Hours of Operation, and Age of Building. Retrieved from:
https://www.eia.gov/consumption/commercial/data/2018/index.php?view=characteristics#b11-b14

U.S. Department of Health and Human Services. (2021). "Locations of hospitals and critical access hospitals." Retrieved from Policy Link. https://data.hrsa.gov/topics/health-workforce/ahrf

U.S. Department of Housing and Urban Development. (2019). "FY 2019 Income Limits Summary Newark, NJ HUD Metro FMR Area." Retrieved from: https://www.huduser.gov/portal/datasets/il/il2019/2019summary.odn

U.S. EPA. (2023). Green Infrastructure Funding Opportunities. https://www.epa.gov/green-infrastructure/green-infrastructure-funding-opportunities

U.S. EPA. (2023, April 24). What is Green Infrastructure? Retrieved from: https://www.epa.gov/green-infrastructure/what-green-infrastructure

U.S. Environmental Protection Agency. (2018). Estimating the environmental effects of green roofs: A case study in Kansas City, Missouri. EPA 430-S-18-001. Retrieved from: www.epa.gov/heat-islands/using-green-roofs-reduce-heat-islands

Walden, E. (2021). Black and Brown Centered Placemaking Rooted in Identity and Ownership. *Richmond Racial Equity Essays*. https://doi.org/10.21974/ckhm-4s54

Webb, D. (2014). Placemaking and Social Equity: Expanding the Framework of Creative Placemaking. *Activate* Vol, 3, Issue 1, 35-48. https://doi.org/10.1353/artv.2014.0000

Williams, D.R. & Collins, C. (2001). Racial Residential Segregation: A Fundamental Cause of Racial Disparities in Health. *Public Health Reports*, Vol. 116. P. 404-416. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1497358/pdf/12042604.pdf

Urban Manufacturing Alliance. (2019). All About the Jobs: Eight Mission-Driven Industrial Developers on How Their Spaces Anchor Manufacturers and Support Local Economies. Retrieved from: https://www.urbanmfg.org/wp-content/uploads/2019/12/UMA-All-About-the-Jobs-Report-Final.pdf

U.S. Department of Housing and Urban Development. (2023). HUD Awards and Allocations. https://www.hudexchange.info

Wood, L., Hooper, P., Foster, S., & Bull, F. (2017, November). Public Green Spaces and Positive Mental Health – Investigating the Relationship Between Access, Quantity and Types of Parks and Mental Wellbeing. *Health and Place.* Vol. 48, 63-71.

Xu, Y., Wu, L., Xie, Z., and Chen, Z. (2018). "Building Extraction in Very High Resolution Remote Sensing Imagery Using Deep Learning and Guided Filters." *Remote Sensing*, Vol. 10, No. 144.

APPENDICES

Appendix A: Methodological Notes

1. Policy Simulation Methodology

This report developed three simulations to estimate the maximum development potential for residential, commercial/industrial, and green infrastructure development under development rights encoded in the City of Newark's proposed 2023 zoning ordinance. Two limits are taken into consideration in the simulation to estimate maximum development potential: the inventory of available land and development rights. In actuality, there are many additional limits and trade-offs that inform development trajectories. For example, environmental constraints are a significant factor of the predevelopment process. About 3 percent of the inventory or 59 parcels are on NJDEP's list of contaminated sites that require environmental remediation (NJDEP, 2023). Additionally, development rights are potentially adjustable when landowners receive a variance in the land use review process. Other limits include financial and organizational constraints to implement potential development plans. While CLiME's estimate of development potential on city-owned land takes available land and development rights into consideration, only a portion of estimated development may be viable when taking these additional limits into consideration.

The simulations define the universe of property as all available city-owned land in standard zoning districts under the proposed 2023 zoning ordinance. City-owned property located in Redevelopment Areas are not included in the simulation because development rights are specific to the block or parcel level and are difficult to simulate. Additionally, public land is limited to property that is available for conveyance (i.e., property without a municipal use, property that is not in the disposition pipeline, and property without a municipal use managed by the City). We removed an additional 28 property records because the records are missing from the parcel map which impedes our calculation of lot area.

We estimate development potential by joining the zoning spatial layer to a parcel spatial dataset of city-owned property. The City's 2017 zoning spatial layer was manually updated to reflect changes in the March 2023 proposed zoning ordinance by georeferencing PDF maps released by the City's planning department (City of Newark, 2023). After linking parcel records to the proposed 2023 zoning map, the simulation assesses whether the parcel meets minimum requirements for development and quantifies maximum development potential on the parcel in terms of number of housing units or square feet of commercial and industrial space.

Parcels are not "repurposed" across simulations. If a lot is used in one simulation, an alternative use of the same space is not re-simulated in a subsequent simulation. In some zoning

districts, it may be permissible to construct either residential or commercial uses under the zoning code. The simulations are sequential and prioritize the use of land in the order that the simulations are presented. First, we consider all available city-owned land that is suitable for housing in residential, mixed-use, and commercial zoning districts. Then, we simulate economic uses in mixed-use buildings as well as industrial buildings in mixed-use, commercial, and industrial zoning districts. Finally, we simulate potential green infrastructure sites on lots that are not suitable for residential and commercial development because the lot is below the minimum required size or is oddly configured.

The only case where there is overlap between parcels across simulations are mixed-use buildings. The housing simulation identifies lots suitable for mixed-use buildings, proposing that all but the first floor is dedicated for residential uses. The economic development simulation takes those same mixed-use buildings and suggests that the first floor is reserved for commercial uses. There is an overlap in parcels but not in simulated space.

Simulation 1: Affordable Housing

The first simulation on affordable housing production considers available city-owned land in all residential districts (R-1, R-2, R-3, R-4, R-5, R-6), select commercial districts (C-1 and C-2), and mixed-use districts (MX-1, MX-2, MX-3). The simulation considers potential housing development on lots that currently have a residential building as well as lots where residential redevelopment is possible, including vacant lots, parking lots, and other property with an existing structure that is not residential. The simulation assumes that buildings can be rehabilitated or demolished to produce the maximum number of permitted housing units regardless of the state of the structure on the lot. The simulation does not allocate additional lot area for parking. Additionally, the total number of estimated units per lot reflects the minimum lot area per unit for each residential building type (see **Table 10**). Affordable housing plans that prioritize larger units with multiple bedrooms to accommodate with families may yield a smaller number of total units and support affordable housing goals.

We calculate the maximum number of housing units permitted in accordance with development rights under proposed 2023 zoning. The simulation simplifies lot requirements for residential development. We identify parcels that meet minimum lot area requirements for all potential forms of residential uses in each zoning district (see **Table 10**). The simulation does not take minimum lot width into account, though oddly configured lots were manually eliminated from the sample during data preprocessing. Further, the simulation assumes that large lots in low-density residential zones that meet minimum subdivision requirements can be subdivided to produce additional housing units. For example, a 10,000 square foot lot in the R-1 single-family zone can be subdivided into two 5,000 SF lots. Finally, the simulation assumes that existing residential structures in zoning districts that permit residential uses can be retained as non-conforming uses. If there is an

existing residential structure but the parcel is under the minimum lot area requirements, the simulation assumes that the smallest number of housing units can be retained on the parcel.

Table 10

RESIDENTIAL USES	R-1			R-2			R-3			
	Permitted Use	Min. Lot Area	Unit / Lot	Permitted Use	Min. Lot Area	Unit / Lot	Permitted Use	Min. Lot Area	Unit / Lot or Lot Area Ratio	Max stories
Single family	Y	5,000 SF	1 unit per lot	Y	2,500 SF	1 unit per lot	Y	2,500 SF	1 unit per lot	
Single family with ADU	Y	5,000 SF	2 units per lot	Y	3,000 SF	2 units per lot	Y	3,000 SF	2 units per lot	
Two-family	N	-	-	Y	2,500 SF	2 units per lot	Y	2,500 SF	2 units per lot	
Three-family	N	-	-	Y	2,500 SF	3 units per lot	Y	2,500 SF	3 units per lot	
One-, Two-, or Three-Family with ADU	N	-	-	Y	3,000 SF	2 - 4 units per lot	Y	3,000 SF	2 - 4 units per lot	
Four-family	N	-	-	N	-	-	Y	3,500 SF	4 units per lot	
Townhouse[36]	N	-	-	N	-	-	Y	5,000 SF	825 SF per unit	3 stories / 36 feet
Low-rise multifamily	N	-	-	N	-	-	N	-	-	-
Mid-rise multifamily	N	-	-	N	-	-	N	-	-	-
High-rise multifamily[37]	N	-	-	N	-	-	N	-	-	-
Mixed-use building	N	-	-	N	-	-	N	-	-	-

RESIDENTIAL USES	R-4				R-5				R-6			
	Permitted Use	Min. Lot Area	Unit / Lot	Max stories	Permitted Use	Min. Lot Area	Unit / Lot	Max stories	Permitted Use	Min. Lot Area	Unit / Lot or Lot Area Ratio	Max stories
Single family	Y	2,500 SF	1 unit per lot		N	-	-		N	-	-	
Single family with ADU	Y	3,000 SF	2 units per lot		N	-	-		N	-	-	
Two-family	Y	2,500 SF	2 units per lot		N	-	-		N	-	-	
Three-family	Y	2,500 SF	3 units per lot		N	-	-		N	-	-	
One-, Two-, or Three-Family with ADU	Y	3,000 SF	2 - 4 units per lot		N	-	-		N	-	-	

[36] The simulation assumes that townhouses have a minimum lot area of 825 square feet per dwelling unit if a 3-story townhouse contains 3 units.
[37] The 2023 proposed zoning ordinance permits an additional floor for each additional 1,000 square feet of lot area up to 20,000 square feet. (City of Newark, 2023, p. 113)

Four-family	Y	3,500 SF	4 units per lot		N	-	-		N	-	-	
Townhouse	Y	5,000 SF	825 SF per unit	3 stories / 36 feet	N	-	-	-	N	-	-	
Low-rise multifamily	Y	5,000 SF	250 SF per unit	5 stories / 60 feet	Y	5,000 SF	250 SF per unit	5 stories / 60 feet	Y	5,000 SF	250 SF per unit	5 stories / 60 feet
Mid-rise multifamily	N	-	-	-	Y	7,500 SF	150 SF per unit	8 stories / 96 feet	Y	7,500 SF	150 SF per unit	8 stories / 96 feet
High-rise multifamily	N	-	-	-	N	-	-	-	Y	10,000 SF	150 SF per unit	10 stories / 120 feet
Mixed-use building	N	-	-	-	N	-	-	-	N	-	-	-

RESIDENTIAL USES	**C-1**				**C-2**				**C-3**			
	Permitted Use	**Min. Lot Area**	**Unit / Lot**	**Max stories**	**Permitted Use**	**Min. Lot Area**	**Unit / Lot**	**Max stories**	**Permitted Use**	**Min. Lot Area**	**Unit / Lot**	**Max stories**
Single family	N	-	-		N	-	-		N	-	-	
Single family with ADU	N	-	-		N	-	-		N	-	-	
Two-family	N	-	-		N	-	-		N	-	-	
Three-family	N	-	-		N	-	-		N	-	-	
One-, Two-, or Three-Family with ADU	N	-	-		N	-	-		N	-	-	
Four-family	N	-	-		N	-	-		N	-	-	
Townhouse	N	-	-	-	N	-	-	-	N	-	-	-
Low-rise multifamily	Y	5,000 SF	250 SF per unit	5 stories / 60 feet	N	-	-	-	N	-	-	-
Mid-rise multifamily	N	-	-		N	-	-	-	N	-	-	-
High-rise multifamily	N	-	-		N	-	-	-	N	-	-	-
Mixed-use building	Y	3,500 SF	150	5 stories / 60 feet	Y	3,500 SF	150	8 stories / 96 feet	Y	3,500 SF	150	8 stories / 96 feet

RESIDENTIAL USES	**MX-1**				**MX-2**				**MX-3**			
	Permitted Use	**Min. Lot Area**	**Unit / Lot**	**Max stories**	**Permitted Use**	**Min. Lot Area**	**Unit / Lot**	**Max stories**	**Permitted Use**	**Min. Lot Area**	**Unit / Lot or Lot Area Ratio**	**Max stories**
Single family	Y	2,500 SF	1 unit per lot		N	-	-		N	-	-	
Single family with ADU	Y	3,000 SF	2 units		N	-	-		N	-	-	

			per lot									
Two-family	Y	2,500 SF	2 units per lot		N	-	-		N	-	-	
Three-family	Y	2,500 SF	3 units per lot		Y	2,500 SF	3 units per lot		Y	2,500 SF	3 units per lot	
One-, Two-, or Three-Family with ADU	Y	3,000 SF	2 - 4 units per lot		Y	3,000 SF	2 - 4 units per lot		Y	3,000 SF	2 - 4 units per lot	
Four-family	Y	3,500 SF	4 units per lot		Y	3,500 SF	4 units per lot		Y	3,500 SF	4 units per lot	
Townhouse	Y	5,000 SF	825 SF per unit	3 stories / 36 feet	Y	5,000 SF	825 SF per unit	3 stories / 36 feet	-	-	-	-
Low-rise multifamily	Y	5,000 SF	250 SF per unit	5 stories / 60 feet	Y	5,000 SF	250 SF per unit	5 stories / 60 feet	Y	5,000 SF	250 SF per unit	5 stories / 60 feet
Mid-rise multifamily	N	-	-	-	Y	7,500 SF	150 SF per unit	8 stories / 96 feet	Y	7,500 SF	150 SF per unit	8 stories / 96 feet
High-rise multifamily	N	-	-	-	N	-	-	-	Y	10,000 SF	150 SF per unit	10 stories / 120 feet
Mixed-use building	Y	3,500 SF	150	6 stories / 72 feet	Y	3,500 SF		8 stories / 96 feet	Y	10,000 SF		145 feet

Simulation 2: Mixed-Use and Industrial Development

The second simulation examines the potential for economic uses in mixed-use buildings and industrial development. Any parcels that are part of the first simulation about affordable housing development are excluded from the universe of potential parcels. The simulation considers mixed-use buildings with residential and commercial uses in commercial (C-1, C-2, C-3) and mixed-use (MX-1, MX-2, and MX-3) zoning districts. The simulation considers detached industrial buildings in industrial zones (I-1, I-2, I-3). Parcels located in areas zoned for the port or airport are not included in the simulation. The simulation identifies lots as candidates for mixed-use or industrial buildings based on parcel features regardless of the type of structure on the lot.

For mixed-use buildings, the simulation shows that commercial uses will only be designated on the first floor of the building. For industrial buildings, the simulation shows industrial buildings will be constructed to the maximum number of stories permitted by the zoning code. Although the zoning ordinance requires that the maximum lot coverage by an industrial building is 85 percent of lot area, we estimate that the building footprint is 70 percent of lot area to acknowledge additional space needed for loading docks and parking for industrial buildings.

Table 11

COMMERCIAL / INDUSTRIAL USES	C-1				C-2				C-3			
	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories
Mixed-Use Building	Y	3,500	90%	5 stories / 60 feet	Y	3500	90%	8 stories, 96 feet	Y	3,500	90%	8 stories, 96 feet
Makers Space	N	-	-	-	N	-	-	-	Y	5,000 SF	85%	8 stories, 96 feet
Flex Space, Light Industrial	N	-	-	-	N	-	-	-	N	-	-	-
Manufacturing, Light	N	-	-	-	N	-	-	-	N	-	-	-
Manufacturing, Medium	N	-	-	-	N	-	-	-	N	-	-	-
Manufacturing, Heavy	N	-	-	-	N	-	-	-	N	-	-	-

COMMERCIAL / INDUSTRIAL USES	MX-1				MX-2				MX-3			
	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories	Permitted Use	Min. Lot Area	Max Lot Coverage	Max stories
Mixed-Use Building	Y	3500	90%	6 stories, 72 feet	Y	3500	90%	8 stories, 96 feet	Y	10,000 SF		145 feet, 12 stories
Flex Space, Light Industrial	N	-	-	-	Y	5,000 SF	85%	8 stories / 96 feet	N	-	-	-
Manufacturing, Light	Y	5,000 SF	85%	8 stories / 96 feet	Y	5,000 SF	85%	8 stories / 96 feet	Y	5,000 SF	85%	8 stories / 96 feet
Manufacturing, Medium	N	-	-	-	N	-	-	-	N	-	-	-
Manufacturing, Heavy	N	-	-	-	N	-	-	-	N	-	-	-

Simulation 3: Green Infrastructure Development

The third simulation identifies potential sites for green infrastructure. Any sites that are used in the prior simulations for affordable housing and commercial/industrial development are excluded from the scope of the green infrastructure simulation. The universe of potential sites includes available city-owned lots categorized as vacant or undersized lots without a structure. Additionally, the simulation identified sites with existing or simulated structures where green infrastructure can be installed in the form of green roofs. We queried city-owned lots categorized as municipal buildings and verified that lots had an existing structure by comparing to an open source spatial dataset of building footprints (Microsoft Maps, 2018).

1. **Calculating Land Area**

CLiME's calculation of land area will differ from estimates derived from administrative records. The State of New Jersey's MOD-IV property tax assessment records contain an automated field called "calculated lot area" derived from the accompanying field, "land dimensions." The values for "land dimensions" are known to be unreliable and were undergoing an update during the time of writing. CLiME used GIS software to calculate lot area from a spatial file of the parcel map to develop a closer approximation of lot area. All property records that had additional lots associated with the primary property record were merged to calculate the total area of the property record.

There are 28 property records with missing data for estimated lot area because these records are not included on the parcel map. Most of these records are sub-elements of lots and not represented on the parcel map (e.g., condo units, parking lots, billboards). These property records would have a very small lot area relative to a standard buildable lot.

2. **Policy Simulation Methodology**

This report developed three simulations to estimate the maximum development potential for residential, commercial/industrial, and green infrastructure development under development rights encoded in the proposed 2023 zoning ordinance. Two limits are taken into consideration in the simulation: available land and development rights.

Defining the universe of property for the simulations. All simulations limit the universe of land to property in standard zoning districts outside of redevelopment areas.

Additionally, public land is limited to property that is available for conveyance (i.e., property without a municipal use, property that is not in the disposition pipeline, and property without a municipal use managed by the City). We removed an additional 19 property records because the records are missing in the parcel spatial layer.

Appendix B: City Letter of Intent Review Rubric

Property Management evaluates the Letter of Intent (LOI) according to a formal rubric. The Senior Manager of the Property Management Division evaluates LOIs according to criteria related to the proposal's alignment with applicable Redevelopment Plans, the purchaser's connection to the community, community benefits, and successful development experience (see **Figure 19**). The development of long-term affordable units is part of the Division's evaluation criteria, but is not a requirement for conveying property.

Figure 19

LOI Review Criteria for Redevelopment Agreement Candidates

1. Consistency with applicable Redevelopment Plan
2. Strength of Community Benefits
3. Purchaser ties to community (other property holdings, resident status, business ownership, employment, membership in local civic groups)
4. Economic benefit to Newark
5. Minimum 20 percent of units are long-term or permanently affordable to low- and moderate-income families
6. Priority access to affordable housing units for Newark residents
7. Redeveloper experience completing similar projects
8. Long-term success of prior projects completed by redeveloper

Each item is rated on a score of 1 to 5. Property Management determines whether to advance the LOI to a Preliminary Designation Letter (PDL).

Appendix C: Expanded Tables

Table 12

Available City-Owned Property by Structure Type	
Structure Type	**Count**
Vacant Lot	497
Undersized Lot	181
Residential	66
Parking Lot	45

Commercial	33
Industrial	20
Alleyway	15
Garage	11
Parking Space	10
Church	5
Residential/Commercial	4
Billboard	4
Residential - Condo Unit	3
Gas Station	1
Total	**895**

Table 13

Input Property Structure Type for Housing Simulation	
Property Structure	**Count**
Vacant Lot	230
Residential	47
Commercial	15
Parking Lot	14
Garage	5
Church	3
Industrial	1
Total	**315**

Note: The simulation produces 319 parcels. Here, the table of parcels by property structure shows 315 input structures because the simulation assumes that 4 parcels in lower density zoning districts are subdivided to optimize the total number of housing units.

EMPOWERING PUBLIC PROPERTY

Simulating New Housing, Economic Development and Greenspace Policy with Newark's City-Owned Property Inventory

BY ELANA SIMON AND DAVID D. TROUTT,
RUTGERS CENTER ON LAW, INEQUALITY AND METROPOLITAN EQUITY

RUTGERS CLiME
Center on Law, Inequality and Metropolitan Equity

FEBRUARY 2024