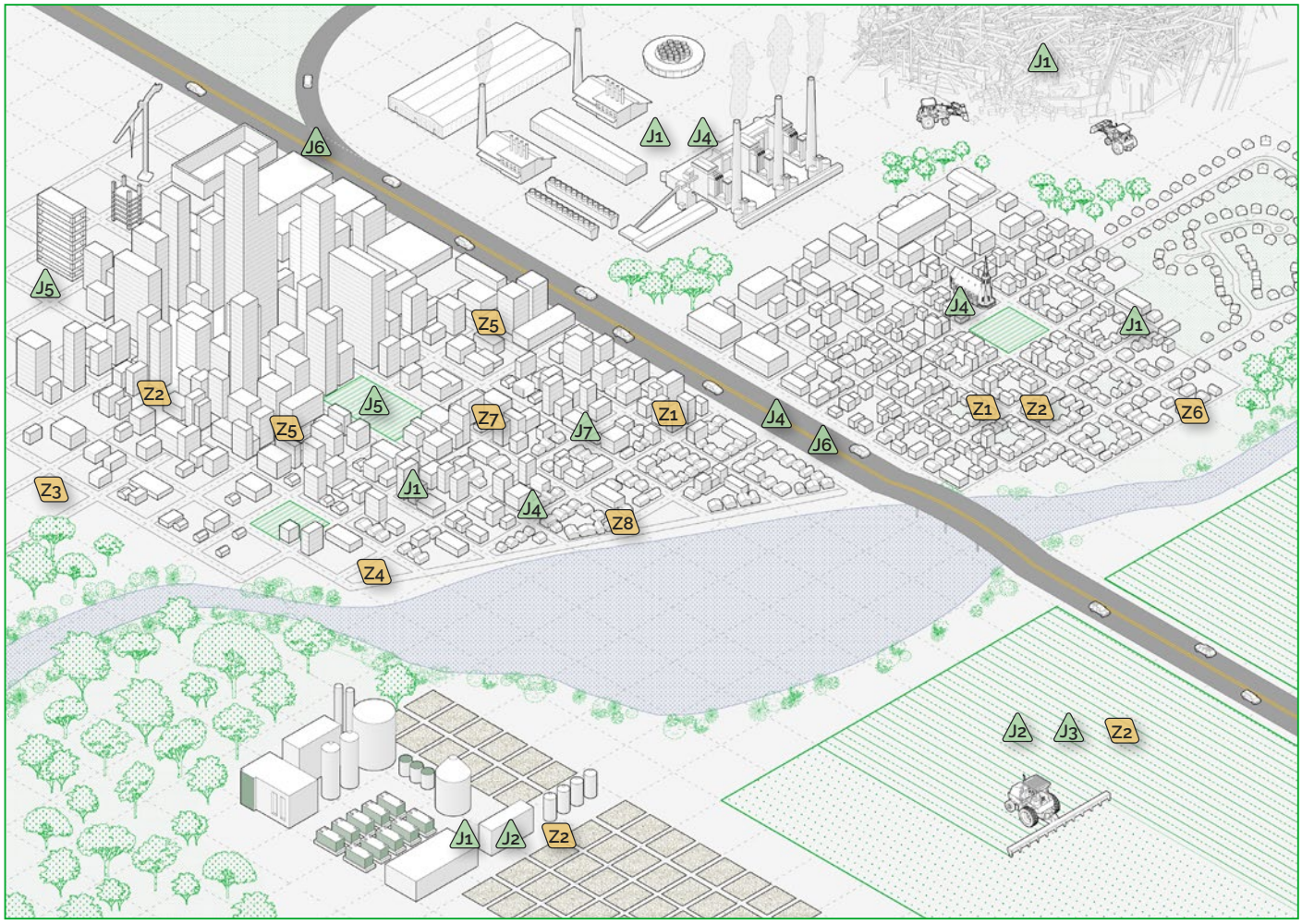

Embodying Justice in the Built Environment

Just and Equitable Land Use Transitions in Advancing Carbon Neutrality

A Guide and Workbook

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EXECUTIVE SUMMARY

Purpose

Embodying Justice in the Built Environment: Just and Equitable Land Use Transitions in Advancing Carbon Neutrality consists of a guide and workbook for local governments, community organizations, and other government agencies and advocates seeking to center justice and equity as they work toward shifting land use and zoning to achieve carbon neutrality. This is the second guide in a series. The first guide is *Embodying Justice in the Built Environment: Circularity in Practice.*

What is the *Embodying Justice* Framework?

Embodying Justice is a continuous process that recognizes and remedies past and present harm within the built environment while working toward just futures. *Embodying Justice* requires cities to carefully and comprehensively examine regulations, programs, and practices that affect the way **that land is used, stewarded, and developed,** and their impacts on justice.

Embodying Justice means actively addressing harms, past and present, built into spaces around us. It is an **ongoing process of repair and imagination**, where cities recognize how policies and planning have caused harm, alongside committing to more just policies and programs in their place. This work requires looking closely at how land is used, who gets to shape it, and who benefits. *Embodying Justice* asks cities to rethink the rules, programs, and everyday decisions that impact neighborhoods. How we move forward must be **centered in community power through care, stewardship, and use.**

This concept is grounded in these guiding principles:

Justice is reparative
It concerns itself with making right what has been wronged, reconnecting what has been broken, and balancing the imbalanced.

Justice is fair
It equitably distributes social, cultural, political, economic, and environmental benefits and burdens.

Justice is community-driven
It centers historically oppressed and marginalized communities in a collaborative and inclusive process to move toward just futures.

Justice is placed
It is grounded in the specific community context in which it is invoked, rather than an abstract concept.

Justice is not a singular endpoint
It is a continuing process of reflection, acknowledgment, and action.

Carbon neutrality requires rethinking the way land is planned, regulated, maintained, and developed. Rethinking these systems offers important opportunities to acknowledge the injustices of the past and present and work towards equitable and just land use transitions. In the present climate emergency and with limited resources, cities should combine efforts to work toward carbon neutrality by lowering embodied carbon through changes to land use and zoning, while centering justice and equity in their work.

Embodied carbon refers to the greenhouse gases associated with the life cycle of a building (or product), from initial extraction of virgin materials, manufacturing of building components, transportation, installation, use, maintenance, and end of life. Reducing embodied carbon is a key tenet of carbon neutrality.[1]

Land use is used to describe how humans utilize and modify land for purposes such as homes, businesses, industries, agriculture, transportation, recreation, and conservation.

Zoning is one mechanism that is commonly used in North America to regulate the way land is developed.

Transition in this guide means the change from energy-intensive, wasteful, and unjust patterns of land use and development to more equitable, just, and sustainable forms of development.

See the **Glossary** for more definitions of the terminology used throughout this guide and workbook.

About the Guide and Workbook

A team of researchers, with the support of community leaders, reviewed and analyzed the land use section of the *City Policy Framework for Dramatically Reducing Embodied Carbon*, which details 52 policies for achieving carbon neutrality goals. While considering the prevalence of injustice and inequity embedded in land use and the built environment, the analysis was then developed into a conceptual framework that forefronts justice and equity principles.

This guide and workbook supports community organizations in identifying opportunities for engagement and change, recognizing that creating just, equitable, and carbon-neutral cities requires action beyond local government alone. Designed to accompany CNCA's *City Policy Framework*, it expands cities' capacity to shape climate-conscious land use transitions rooted in justice and equity. Through practice stories and interactive targeted questions, this guide and workbook aims to prompt meaningful discussions among agencies, stakeholders, and communities.

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GLOSSARY

Accessory Dwelling Units

A smaller, self-contained residential dwelling unit located on the same lot as a stand-alone or detached single-family home.[1]

Carbon Neutrality

Achieving net zero greenhouse gas emissions by balancing those emissions in order to equalize or reduce the emissions that get removed through the planet's natural absorption.[2]

Community Benefit Agreement (CBA)

Legally binding contract–often between developers and residents or community-based organizations that shapes how local development projects contribute to improving the quality of life of nearby residents. [3]

Community Benefit Ordinance (CBO)

Law that formalizes the community benefits agreement process into law. CBOs require developers to formally and proactively engage with impacted communities to address potential negative impacts of the projects and negotiate benefits packages.[4]

Climate Adaptation

A response to climate changes, events, or effects through ecological, social, economic, or built environment adjustments in order to reduce potential climate impacts both present and future.[5]

Climate Mitigation/ Decarbonization

An active effort to decrease the amount of emissions released into the atmosphere by directly reducing carbon dioxide emissions' impacts on the rise in global temperature.[6]

Community Land Trust

"A nonprofit, community-based organization whose mission is to provide affordable housing in perpetuity by owning land and leasing it to those who live in houses built on that land."[7]

Embodied Carbon

The amount of greenhouse gas emissions associated with upstream - extraction, production, transport, and manufacturing - stages of a building's lifespan (or other structures). This also considers "emissions associated with the use of a structure and its disposal."[8]

Embodying Justice

A continuous process that recognizes and remedies past and present harm within the built environment, working toward just futures (see the *Executive Summary*).

First Nations

Refers to one of the three recognized groups of Indigenous peoples of Canada, (along with Inuit and Métis). This includes those who are status and non-status Indians under the Indian Act of Canada, There are "over 630 First Nations communities in Canada, which represent more than 50 Nations and 50 Indigenous languages."[9]

Gentrification

Gentrification is a term that has multiple definitions, Researchers have generally defined it as involving an "influx of investment and new residents with higher income and educational attainment into a neighborhood."[10] Gentrification is a cause for concern in that it is associated with both direct or indirect displacement effects. **Direct displacement** involves the involuntary displacement of residents due to the demolition of housing units, evictions, eminent domain, and investment in existing building stock that forces residents from their homes. **Indirect displacement** describes when residents are forced out through general changes in the neighborhood housing market, even if they are not directly evicted.

Other related terms include:

Green gentrification is a term that is used to describe displacement in the wake of public investments in infrastructure meant to improve the environment in cities such as parks, open spaces, or transit.[11]

Climate gentrification is another related term that has been used to describe how the combination of climate impacts and systematic inequities have accelerated processes of displacement.

GLOSSARY

Indigenous Peoples/ Indigenous Nations

Refers to peoples who are Indigenous to a geographical region who possess social, cultural, and economic characteristics that are distinct from other peoples of a national community. Indigenous peoples define themselves based on their own customs and traditions, irrespective of their legal status from an external State, and can include a variety of membership criteria including self-identification accepted by the community, distinct languages, culture, and beliefs, and strong links to territories with resolve to maintain their ancestral environments, among others.[12]

Land Back

A decolonization and repair process that returns land to Indigenous peoples as stewards, including but not limited to land, waters, ecologies, natural resources, and infrastructure on the land.[13]

Land Bank

"Public or community-owned entities created for a single purpose: to acquire, manage, maintain, and repurpose vacant, abandoned, and foreclosed properties."[14]

Land Use

A term used to describe how humans utilize and modify land for purposes such as homes, businesses, industries, agriculture, transportation, recreation, and conservation.[15]

Operational Carbon

A categorization of carbon that is used in operating a building that includes: electricity, heating, cooling, and power usage.[16]

Passive House Standard

A voluntary building energy standard focused on creating energy efficient buildings with a strong emphasis on occupant comfort and health. It relies on five core design aspects: continuous insulation, thermal bridge-free construction, airtight construction, high-performance windows and doors, and a dedicated mechanical ventilation system with heat recovery.[17]

Priority Populations / Priority Communities

Those who have suffered the burdens of discriminatory, unjust, and inequitable practices, policies, laws, and societal norms. This includes Indigenous, Black, and people of color, immigrants, people with disabilities, and other identities that have been racialized, marginalized, and underrepresented.

Racial Covenants

Language inserted into property deeds and records that prevents or restricts those who are not White from purchasing or occupying land, homes, or businesses.[18]

Reconciliation

To build and strengthen relationships (reconcile), offer redress (address past wrongs) and reparations (compensate for losses and damages), restore people to where they once were, and regenerate (a cultural revival in Indigenous communities and transforming relations with others).[19]

Redlining

"A discriminatory practice that consists of the systematic denial of services such as mortgages, insurance loans, and other financial services to residents of certain areas, based on their race or ethnicity."[20]

Right to Return

Communities who were and are displaced by slavery, colonization, land theft, or unjust development have the right to reclaim access to the places they were forced to leave. For Indigenous and Black communities, it means restoring land, repairing relationships, and returning power to those historically pushed out.[21]

Shared Ownership

Ownership of property that is owned by two or more people.[22]

GLOSSARY

Tribal Nations

Refers to Indigenous sovereign governments that predate the formation of the United States. They are political entities composed of Native American or Alaska Native communities that maintain distinct cultural, political, and social identities, govern themselves, and manage their own lands. Tribal Nations are federally recognized and have a government-to-government relationship with the United States.[23]

Zoning

The most common method in jurisdictions to delineate and divide land into different areas of use, which are permitted within that area.[24]

1

EMBODYING JUSTICE IN LAND USE TRANSITIONS: AN INTRODUCTION

Photo Credit: Justin Peng

Downtown Vancouver, BC waterfront skyline

Photo Credit: Justin Peng

The way cities are planned and developed has profound implications for both carbon neutrality and social justice. In many North American cities, patterns of land use and urban growth not only accelerate greenhouse gas emissions but also perpetuate long-standing inequities. Planning tools—such as zoning codes that mandate parking minimums, mandatory large lot sizes for single-family houses, lack space for a diversity of lot sizes, or otherwise zone out forms of affordable and inclusive development—often can have negative climate impact and produce unjust consequences.

These policies can increase greenhouse gas emissions, reinforce exclusivity, limit housing options, and drive up housing costs. In many cities, large swaths of land are reserved through zoning for expensive, low-density housing that reinforces dependency on automobiles. An overwhelming share of urban land is dedicated to highways and parking lots, privileging car travel and increasing vehicle miles traveled (VMT), which in turn drives higher emissions. The impacts of these systems of regulating the land fall hardest on low-income and racialized communities, who are more likely to not have access to reliable public transit or zero-emissions vehicles, live near sources of pollution and suffer the health and safety consequences.[1] Compounding these issues, the construction of buildings often relies on building materials that are energy-intensive to manufacture and polluting, further undermining efforts toward climate neutrality and social equity.[2]

Carbon Neutrality and Justice: Works in Progress

Carbon neutrality requires rethinking the way land is planned, regulated, maintained, and developed. Rethinking these systems offers important opportunities to acknowledge the injustices of the past and present and work towards equitable and just land use transitions. In the present climate emergency and with limited resources, cities should combine efforts to work toward carbon neutrality by lowering embodied carbon through changes to land use and zoning, while centering justice and equity in their work.

Embodied carbon refers to the greenhouse gases associated with the life cycle of a building (or product), from initial extraction of virgin materials, manufacturing of building components, transportation, installation, use, maintenance, and end-of-life. Reducing embodied carbon is a key tenet of carbon neutrality.[3] **Land use** is used to describe how humans utilize and modify land for purposes such as homes, businesses, industries, agriculture, transportation, recreation, and conservation. **Zoning** is one mechanism

that is commonly used in North America to regulate the way land is developed. **Transition** in this guide means the change from energy-intensive, wasteful, and unjust patterns of land use and development to more equitable, just, and sustainable forms of development.

About the Just and Equitable Land Use Transitions in Embodied Carbon Reduction

This guide and workbook, *Embodying Justice in the Built Environment: Just and Equitable Land Use Transitions in Advancing Carbon Neutrality*, was written with the belief that progress can be made through careful consideration and action. International, national, and local efforts are underway to reduce embodied carbon. Likewise, important efforts are underway to address systemic injustices. In this guide and workbook, we have compiled stories and strategies that integrate these two lenses to facilitate change. We call these **practice stories**.

These practice stories are organized to represent a spectrum of cities in North America, as well as a variety of resources and tools. In the guide and workbook, we move from stories that are directly focused on reducing embodied carbon to broader conceptualizations of just and equitable land use transitions that work toward climate mitigation, adaptation, and justice. Among the practice stories, some cities are more focused on achieving carbon neutrality, while others prioritize justice.

About the First Guide and Workbook: *Circularity in Practice*

The first edition, *Embodying Justice in the Built Environment: Circularity in Practice*, is a guide and workbook focused on aiding local governments and community organizations seeking to center justice and equity in their waste and circularity practices and policies. The workbook is designed to engage with five justice domains focused on three essential aspects of addressing Circularity and Waste: 1) Alternatives to Demolition, 2) Material Resource Management, and 3) New Construction.

HOW TO USE THIS GUIDE AND WORKBOOK

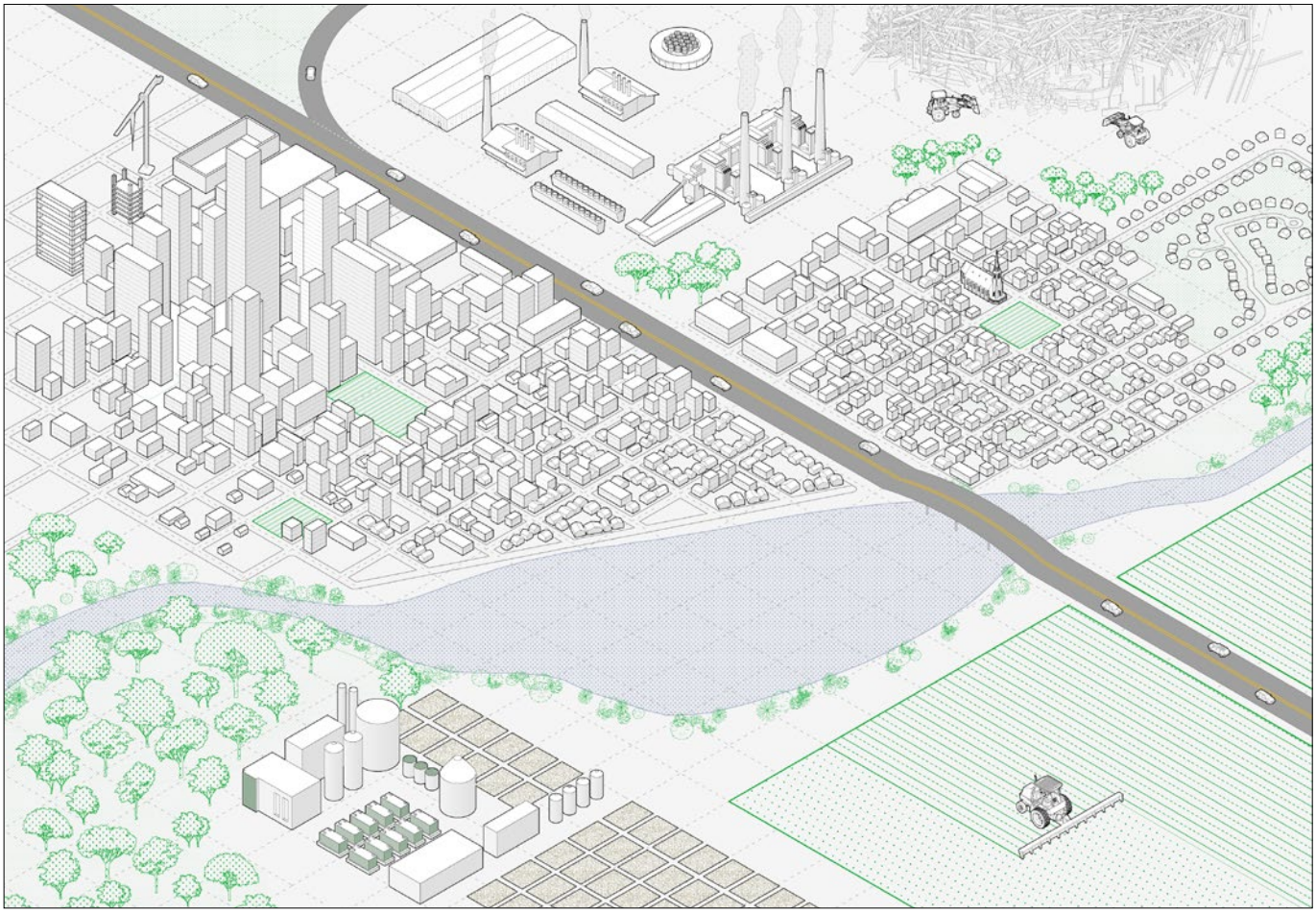


Diagram Credit: Embodying Justice in the Built Environment Team

The *Embodying Justice* guide and workbook is a tool for cities to examine their policies and programs related to the way that they steward land and how they plan and regulate land use. It can serve as a reference for policymakers and practitioners in developing, implementing, and evaluating initiatives related to land use, zoning, climate action, and justice. It can also be useful for government agencies at all levels when addressing planning, architecture, and construction sectors.

The guide and workbook is also intended for community organizations to help identify opportunities for engagement and change in their cities, as transitions to more just, equitable, and carbon-neutral cities require action beyond what local governments can accomplish on their own.

This guide and workbook is designed to be used alongside the CNCA's *City Policy Framework for Dramatically Reducing Embodied Carbon*. It is intended to expand

cities' ability to guide and fully participate in developing more climate-conscious, just and equitable transitions in land use and urban development.

The workbook includes **question sets** that can be used in discussions that bring together agencies, stakeholders, and community. These question sets are to spur discussion. **Practice stories** illustrate examples where Indigenous Nations, government agencies, and community organizations have created pathways where work toward land use transitions has centered justice and equity. For each practice story, a series of questions is provided, with corresponding considerations when developing embodied carbon reduction programs, practices, or policies. The questions are meant to raise awareness of justice issues and prompt users to pursue solutions appropriate for their communities. This is a workbook – make notes, draw lines, connect ideas.

Interwoven Cityscape of Seattle's Freeway Park

Photo Credit: Peter Alfred Hess, CC BY 2.0

2

LAYERS OF INJUSTICE IN LAND USE AND ZONING: PAST AND PRESENT

Photo Credit: Jennifer Minner

Layers of injustice in the use and redevelopment of land have long shaped North American communities, historically and in the present day. This section examines how land has been managed, regulated, and redeveloped—often in ways that have marginalized priority populations and entrenched inequities. These historic and contemporary contexts are essential to understand in working toward just and equitable land use transitions.

As a U.S.-based team, many of the examples provided in this document draw from a North American perspective, and primarily utilizes examples from the United States and some examples from Canada. These examples are not intended to be representative of the ways in which injustices can manifest in other international contexts. Rather, the concepts and examples offered here are only one way in which strategies have been developed to address past and ongoing injustices related to land use and zoning. We hope that through this work, readers will be able to draw parallels within their own specific contexts, working with priority populations to develop strategies that center justice. Note: In this guide we define **priority populations** (also referred to as **priority communities**) as those who have suffered the burdens of discriminatory, unjust, and inequitable practices, policies, laws, and societal norms. This includes Indigenous people, Black people, people of color, immigrants, people with disabilities, LGBTQ+ people, and other identities that have been racialized, marginalized, and underrepresented.

Government policies such as zoning, as well as private sector decisions about where and how to invest in land, play critical roles in shaping environmental and social outcomes. These laws and practices regarding land and property are closely tied to many of the efforts to reduce embodied carbon and other greenhouse gas emissions. Reforming zoning laws and shifting development practices not only have the potential to advance embodied carbon reduction goals but also offer opportunities to address long-standing injustices in land use and urban development.

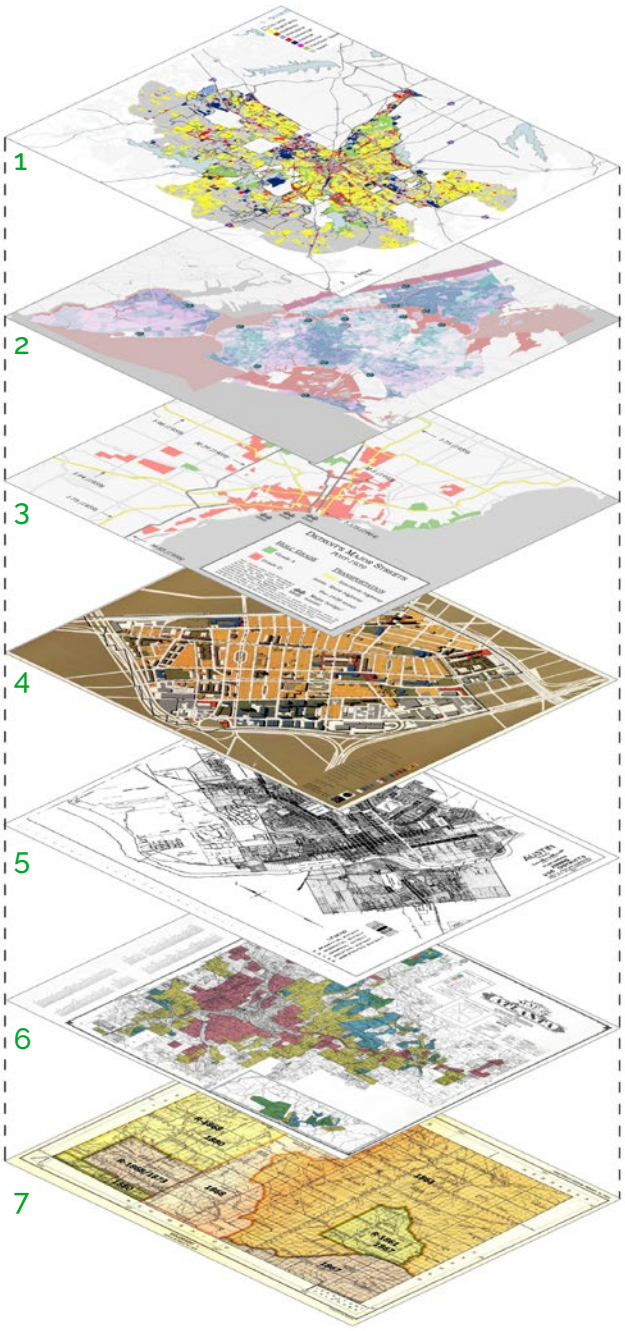


Diagram Credit: Embodying Justice in the Built Environment Team

Most North American cities have layers of injustice that have accrued over time and space. This diagram represents potential points in time and space where patterns in land use settlement, regulation, and development have produced injustices that continue to persist in many communities.[1]

1. Exclusive and Unjust Zoning Districts

Many cities zone out housing choices and may reinforce patterns of exclusion that have disproportionately negative impacts on priority communities.

2. Proximity to Pollution and Hazards

Many priority communities are disproportionately affected by pollution or environmental hazards such as flood risk.

3. Damaging or Harmful Transportation Infrastructure

Historically, transportation infrastructure, such as the construction of highways, has divided and displaced priority communities. Today, priority communities are often underserved, lacking in transit or active transport options, and experience more traffic-related injuries and fatalities.

4. Urban Renewal

In the mid-twentieth century, many U.S. cities were affected by urban renewal schemes that categorized whole neighborhoods as blighted, and called for the demolition of whole neighborhoods and displacement of residents.

5. Segregationist Planning

Some city comprehensive plans in the U.S. enacted segregationist policies that refused infrastructure and services to Black settlements or adopted zoning that placed priority communities in proximity to industrial uses.

6. Redlining

Home Owners' Loan Corporation (HOLC) maps are one example of U.S. federal policies that limited the flow of capital to homeowners and developers based on race, ethnicity, and religion. Other examples of redlining continue through predatory lending by financial institutions.

7. Land Dispossession and Removal of Indigenous Peoples'

Planning and urban development across North America are predicated on the land dispossession of Indigenous peoples. Dispossession took many forms, including breaking (typically deceitful) treaties with Indigenous Nations, forced removal from and seizure of traditional homelands, and attempted forced assimilation into Western society.[2] The practice of codifying Western and Anglo histories went beyond land ownership removal for Indigenous people, but in addition, it has put languages and histories at risk of erasure through "authorized heritage discourse," which validates particular histories while silencing others.[3]

Many present-day inequities are the result of compounded injustices over generations. Discriminatory practices have historically denied the right to inhabit, own, and develop land for targeted populations. This has created the conditions for a persistent racial wealth gap that is perpetuated through unequal access to land and capital; exclusion from opportunities; racial and socioeconomic segregation; and increased exposure to environmental hazards that harm health and well-being. Despite these disadvantages, priority communities that have been affected should not be seen as passive, vulnerable populations but as wellsprings of knowledge, experience, and methods of resilience that can hold vital insights into how prior injustices should be addressed.

Peoples' Precinct in Seattle's Capitol Hill Occupied Protest

Photo Credit: Ash Kopetzky

A critical layer of injustice is the attempted dispossession of Indigenous people from the land that sustained their communities. Before first contact with colonial powers, Indigenous peoples lived as distinct collectives following their own cultures, lifeways, and worldviews, with sets of obligations and responsibilities to steward their ancestral territories. Settler land claims and colonial powers' subsequent expansionism took many forms, including violence, subjugation, and assimilation of Indigenous peoples for land dispossession. Several legal mechanisms were used to facilitate these processes. Treaties, for example, were a common strategy employed by the Canadian and U.S. governments to establish agreements with Indigenous nations between sovereign entities. These treaties often included terms that required Indigenous nations to cede land to their colonial counterparts, regardless of whether the Indigenous nation(s) understood the full ramifications of this agreement or the cultural and legal context in which these treaties were written. Treaties are only one example in a set of tools that facilitated Indigenous land dispossession.

Understanding historical and contemporary treaties, agreements, and relations between Indigenous communities, sovereign tribal nations, and the U.S. and Canadian governments is essential to grasping complex local histories and related injustices, including dispossession, exclusion, resettlement, and displacement from land, as well as the contemporary ties of Indigenous peoples to both ceded and unceded lands, whether they are within an urban or rural context.[4] Respect for Indigenous peoples' sovereignty and rights to follow their cultural practices and connections to land is critical.

Another critical layer of injustice is the enslavement of Africans and the systematic perpetuation of racial segregation and the racial wealth gap through land use. The deeply inequitable distribution of land and wealth in the U.S. is also rooted in the legacy of African enslavement and the use of forced labor to generate wealth for white landowners. After the Civil War, Union

leaders planned to redistribute land to freed Black Americans through Special Field Order No. 15, which promised 40 acres of land per family. However, President Andrew Johnson reversed this policy, returning land to former Confederate owners.

The racial wealth gap continued to be perpetuated through discriminatory policies and practices. According to a Brookings Institution report, "Black Americans are the only group that has not received reparations for state-sanctioned racial discrimination, while slavery afforded some white families the ability to accrue tremendous wealth."[5] Even in regions where slavery was not practiced, its economic and social impacts—including systemic barriers to land ownership—have had lasting effects on Black Americans. These disparities have been carried through generations, further reinforced by multiple waves of mass migration within the U.S.

Local history and cultural organizations can offer valuable insights into the histories of enslaved people, the agricultural operations that exploited their labor, and the experiences of their descendants, whether they moved away, remained in place, or established new settlements. In some regions, freed Black communities formed independent settlements, many of which still exist today.[6]

Historic preservation in Minneapolis, MN

Photo Credit: Ash Kopetzky

The use of racial covenants and discriminatory real estate contracts is another tool of injustice and exclusion. The sale and use of property within the U.S. has been a significant source of discrimination and segregation. In all major U.S. cities, restrictive private covenants were used to exclude people by race, ethnicity, religion, sex, nationality, ancestry, and place of origin.[7] Racial covenants are agreements that place restrictions on the sale, ownership, occupation, and use of property. These restrictions also existed in Canada.[8] Racial covenants appear in various forms. According to the National Covenants Research Coalition:

> *They could be plat restrictions established by a real estate developer from the time a subdivision was laid out. They could be agreements, signed by residents in a neighborhood, never to sell, lease, or allow occupancy by someone who was not Caucasian, then filed with the county recorder of deeds. They could be private block restrictions on a small enclave within a city. They could be a short clause within a deed document, where the restriction or covenant language was embedded in every deed document when the property was transferred.*[9]

Evidence of racial covenants has been collected through various community and university-based efforts. For example, the National Covenants Research Coalition includes efforts in cities in Iowa, Michigan, Minnesota, North Carolina, Pennsylvania, Virginia, Washington, D.C., Washington state, and Wisconsin.[10] There was also an extensive research effort in Austin, Texas. [11]

Aerial image of Detroit neighborhood

Photo Credit: Jennifer Minner

Discriminatory restrictive covenants were typically recorded in property deeds or subdivision documents, which can be found in local County Recorder's or Register of Deeds offices. These documents include subdivision plats, property deeds, and covenants. In addition to the sources and online repositories mentioned above, historical societies and libraries can also be valuable sources of information for identifying these documents. Newspapers and real estate listings from the early 20th century often included racially restrictive language. Local fair housing and civil rights offices and organizations may also be resources. Some homeowners' associations have maintained records of these restrictions.

Real estate agents also used a practice known as **blockbusting**, where they encouraged white homeowners to sell their homes or land quickly, often below market values, by spreading fear that Black families moving into the neighborhoods would cause property values to drop.[12] After buying, agents would then resell or rent to Black families at much higher prices, often using unfair and predatory terms and contracts. This tactic created racial panic, fueled segregation, and made large profits for real estate speculators while destabilizing communities and limiting long-term security for Black families.[13]

Another common practice was the use of **land installment contracts**, also known as **contract sales.** These were often used in cities where Black residents were denied access to traditional home loans. Instead of a mortgage, families would buy homes and land through private contracts that withheld ownership until the entire amount was paid off, sometimes over decades. If a single payment is missed, families could be evicted immediately, losing their land and any money that has been paid towards it.[14] These contracts stripped Black families of the chance to build wealth or gain stability, which enriched white property owners.[15]

Together, these tools—racial covenants, blockbusting, and land contracts—formed a system of exclusion that shaped where people could live, who had access to land, and who was allowed to build stability and wealth over generations. These were not just real estate practices; they were part of a larger pattern of racial injustice embedded in how cities grew and how property was controlled, which continues to impact land use, ownership, and resilience today.

Injustices through Historical and Contemporary Planning and Zoning Regulations

Zoning has long been used as a tool of racial and economic segregation. While often presented as a neutral mechanism for organizing land use and guiding urban development, zoning laws have routinely reinforced social hierarchies and excluded communities of color, low-income populations, individuals living with visible and invisible disabilities, and renters from access to desirable, well-resourced areas. Sonia Hirt describes the United States as a nation centered around the protection of the "single-family home," pointing out how zoning became a vehicle for enforcing middle-class, white suburban ideals, often at the expense of diverse, mixed-use, or affordable housing.[16]

One of the most blatant tools of early 20th-century segregation was racial zoning, the legal practice of dividing neighborhoods based on race. As historian Christopher Silver documents, racial zoning ordinances in cities like Baltimore, Birmingham, Los Angeles, and Richmond explicitly prohibited Black residents from living in predominantly white neighborhoods under the "guise" of preserving property values and "racial homogeneity."[17] Although these ordinances were ruled unconstitutional by the Supreme Court in Buchanan v. Warley (1917), their logic and foundations were and still are embedded in other forms of exclusionary zoning such as minimum lot sizes, single-use zoning, amenity access, and bans on multifamily or affordable housing, which persist today.[18]

Local comprehensive plans and municipal records often reflect these patterns. Older plans reveal how planners and city officials utilized zoning and land use policies to rationalize displacement, urban renewal, and the creation of boundaries for marginalized communities. In some cities, zoning maps from the 1920s through 1950s reveal how industrial uses were placed adjacent to racialized and low-income neighborhoods, increasing exposure to pollution and environmental hazards.[19] In others, civic leaders used zoning to restrict access to parks, schools, or public transportation, thereby cementing uneven development patterns and exacerbating intergenerational inequity.

County and city planning departments often maintain archives of historical zoning maps and comprehensive plans, which can serve as valuable sources of information when tracing the evolution of exclusionary practices. University libraries, regional archives, and local historical societies may also hold relevant collections, especially where public access to planning records has been digitized or preserved by community researchers.[20]

Discrimination through Redlining, Insurance, and Lending

During the 1930s and 1940s, the U.S. federal Homeowner Loan Corporation (HOLC) produced maps that graded neighborhoods in major U.S. metropolitan areas by "residential security," or the risk posed for lenders. HOLC maps divided U.S. cities into areas labeled from A: Best (depicted in green); B: Still Desirable (blue); C: Definitely Declining (yellow); and D: Hazardous (red). These categories were based on who lived in the neighborhood and were largely based on race, national origin, and religion. More specifically, the presence of Black, immigrant, and Jewish residents was associated with categories deemed risky. The effect prevented residents of these neighborhoods from building generational wealth through purchasing and improving property. Private industry records—such as loan denial patterns, informal credit scoring, rate differences, and historic financing and loan guidelines—reveal how access to capital and security was made contingent on race, class, and geography.[21]

HOLC redlining map of Detriot, MI

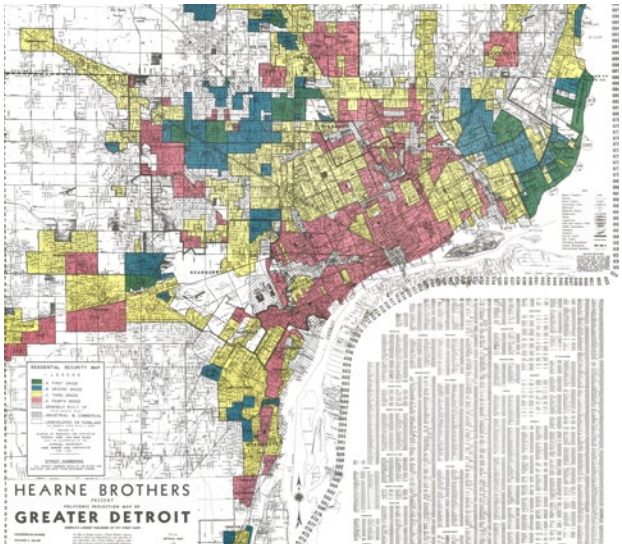


Photo Credit: Robert K. Nelson / American Panorama

Urban Renewal and White Flight

U.S. federal policies supporting urban renewal in the mid-twentieth century played a central role in racialized land change and clearing. Urban renewal was a federal program that was aimed at revitalizing "blighted" areas and often targeted Black and immigrant neighborhoods for demolition, displacing residents without adequate replacement housing.[22] At the same time, white flight - facilitated by subsidized mortgages and highway expansion - transformed metropolitan areas into highly segregated landscapes.[23] As white middle-class families moved to the suburbs, disinvestment intensified in the communities left behind. The result was manufactured decline both in capital and community preservation, and this decline became a justification for demolition, policing, and zoning restrictions.[24] These processes restructured entire regions and neighborhoods around patterns of racial abandonment.

Inequitable Investment and Disinvestment Patterns

Investment in cities has never been evenly distributed. Infrastructure upgrades, public services, and beautification initiatives tend to follow market demand and political influence, leaving working-class neighborhoods and communities of color under-resourced.[25] This pattern of disinvestment followed by speculative reinvestment through capital has become a defining feature of North American cities, obscuring the long histories of neglect that shape current conditions.

Vacancies and Demolition Policies

In cities that are losing population, such as Buffalo, Cleveland, and Detroit, among many others, vacancy has often been addressed through policies that promote demolition rather than repair or reuse.[26] These interventions, framed as "blight removal," frequently target homes in historically redlined neighborhoods, erasing buildings with cultural or historical significance.[27] Demolition records, land bank inventories, and vacancy maps can trace these patterns, although they never provide the entire picture, as vacancy overall can be challenging to track.[28] While promoted as pragmatic and supporting community and urban change, such programs often ignore alternative strategies rooted in stewardship, affordability, or community input.

Vacancy set for demolition in Cincinnati, OH

Photo Credit: Warren LeMay, Public Domain Dedication (CC0)

Property Values and Rent Increase Displacement

Displacement today is often driven by rising cost and associated with gentrification. Although just as harmful, displacement has become a quiet but forceful actor in communities pushed out of their neighborhoods. Neighborhoods become targets for investment and speculation, which in turn creates steep increases in housing costs, property taxes, and fees for both long-time renters and homeowners. Without protections, families are forced to relocate, sometimes block by block, through economic pressure. These forms of displacement can be challenging to track through traditional records but are deeply felt in tenant organizing efforts, eviction court records, and changes in school enrollment.[29]

Inequitable Tax Foreclosure Enforcement

Tax foreclosure is another mechanism of loss. In some jurisdictions, homeowners can lose their property over small debts, often without access to legal support or repayment plans. These foreclosures are unevenly enforced. They tend to concentrate in neighborhoods where land is undervalued or increasingly desirable, making tax delinquency a tool of eviction and dispossession.[30] The records of assessors and auction logs show that this process intersects with race, age, wealth, and development pressure.

Gender and Injustice in Land Use and Planning

The impacts of exclusionary zoning, selective investment, and precarious housing are also shaped by gender. Women, particularly single mothers, trans women, and women of color, often face barriers in accessing and retaining housing. Land use planning has historically prioritized nuclear families and car-centric development, which can isolate those reliant on walking, public transportation, or communal childcare in close proximity. In eviction and displacement patterns, women are disproportionately affected due to caregiving roles, wage disparities, and heightened vulnerability to informal practices of eviction.[31] Yet these gendered dynamics and systems are rarely accounted for in planning documents or redevelopment strategies, which perpetuates a built environment that marginalizes those most reliant on it.

A suburban residential neighborhood.

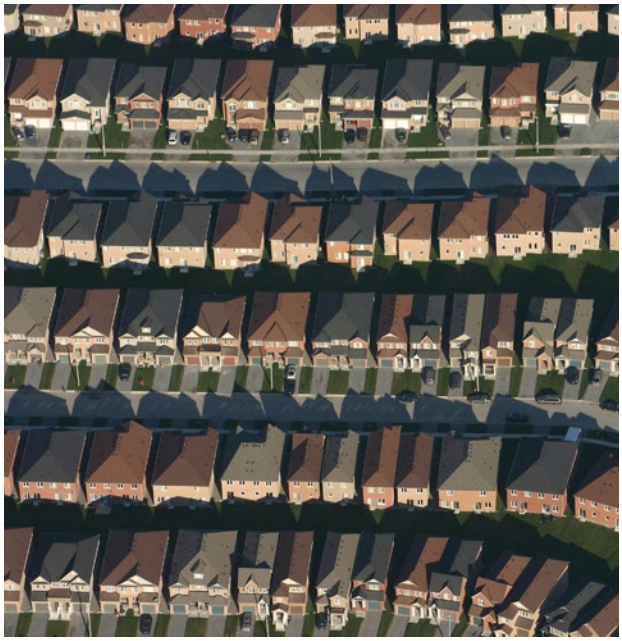


Photo Credit: IDuke, CC BY-SA 2.5

Injustices Related to Housing

Housing injustices are not only enacted through the production of an inadequate supply of housing, the result of many public and private actions (or inactions) influenced by factors such as zoning, national and local policies, and private sector investment patterns. Housing injustices are perpetuated through the ways that existing housing is maintained (or not maintained) and the treatment of tenants (or potential tenants). These decisions determine who has access to shelter, under what conditions, and at what cost.

Discrimination persists not through overt bans but in the realities of unreturned calls, fewer unit showings, and vague justifications of rejection. National audit studies show that Black and Hispanic renters are consistently offered fewer options and poorer treatment compared to their white counterparts with identical profiles.[32] These disparities rarely leave a paper trail but compound over time, creating a fractured field of access shaped by bias, regulation, and discretion. For single mothers, housing access is further complicated by gendered and racial assumptions and punitive welfare surveillance in the United States.[33]

Disability discrimination, both visible and invisible, remains a persistent form of exclusion in housing systems. Despite the passage of the Americans with Disabilities Act (ADA) and the Fair Housing Amendments Act in the U.S., many disabled people continue to face structural barriers in securing safe, affordable, and accessible housing.[34] Units marked as "ADA-compliant"

often fail to meet real-world needs, and few accessible units are available in the first place.[35] For those with invisible disabilities—such as chronic illness, mental health conditions, or neurodivergence—the burden of disclosure and documentation frequently becomes a gatekeeping mechanism.[36] Housing application processes rarely accommodate alternative communication styles, and enforcement of accessibility laws is often left up to individual tenants, placing them in adversarial positions just to secure fundamental rights.[37] These challenges are compounded for disabled tenants who are also low-income, Asian, Latina/o/x, Black, undocumented, female identifying or LGBTQ+, highlighting the need for intersectional frameworks in housing justice.

Aerial image of Detroit neighborhood

Photo Credit: Jennifer Minner

For many tenants, housing instability is produced through pressure, neglect, and coercion. **Harassment and informal eviction** operate outside of formal legal processes. Some landlords withhold essential repairs, shut off utilities, or issue repeated threats in the hope that tenants will self-evict. These tactics, disproportionately used against immigrants, elders, and working-class renters, succeed precisely because they fall beneath the threshold of what courts or regulators consider actionable.[38] As Desmond and Bell argue, such practices create a system of forced mobility, rendering housing contingent on those already vulnerable.[39]

For those without formal leases or addresses, the stakes increase. Many U.S. cities respond to **homelessness** not with housing solutions, but with **fines, arrests, and continual displacement.** Public space becomes a site of exclusion through laws against loitering, sleeping, and the storage of personal items. Herring describes this dynamic as "compliant-oriented policing," in which business interests and private citizens shape how, and where, enforcement is carried out.[40] These punitive strategies do not emerge in isolation; they are enabled by decades of housing underproduction, the rollback of social welfare support, and the criminalization of poverty itself.[41] Structural barriers are particularly steep for those exiting the carceral system. Across the country, public and private housing providers routinely exclude people with prior convictions, regardless of offense, time served, or present circumstances. These exclusions are often unregulated, left to the discretion of landlords or housing authorities. This experience is a form of state-sanctioned neglect that extends carceral control into everyday lives, also considered "organized abandonment."[42]

Housing injustice is also shaped by language. For renters who speak languages other than English, information about leases, rights, or eviction processes is often **inaccessible or inconsistently translated.** In cities like New York, tenants have reported being pushed out of units or manipulated into signing documents that could not be read.[43] The lack of language access (either translation or braille) in housing courts compounds the problems, as tenants unable to self-advocate often face judicial processes without proper interpretation or documentation in their native language.

Even those who own homes are not exempt from **systemic devaluation**. Homes in Black neighborhoods are regularly appraised below market value, even when identical in structure and quality to those in white areas. Perry et al. found that racialized devaluation has stripped Black homeowners of billions of dollars in collective wealth.[44] Appraisal bias is often subtle, carried out through assessments that are difficult to challenge. In some cases, homeowners report receiving significantly higher valuations only after removing evidence of Black ownership from the home, a practice that shows evidence in how race continues to shape economic value.[45]

These housing injustices, whether through displacement, undervaluation, or exclusion, do more than harm individual tenants. They contribute to cycles of demolition, redevelopment, and speculative turnover that erode housing stability while accelerating carbon-intensive construction practices. When people are pushed from homes through harassment, bias, or systemic neglect, it disrupts long-term occupancy and care, triggering material waste and new emissions embodied in building materials and labor. In this way, housing injustice is inseparable from environmental harm. Addressing these forms of exclusion is essential to creating equity and reaching carbon neutrality in order to build just, climate-resilient communities.

Injustices Related to Transportation

Transportation networks in the United States have reflected priorities that sideline the needs of Black, Indigenous, low-income, and rural communities. Access to mobility has not been evenly distributed. From freeway expansion to fare enforcement, decisions around transportation funding, siting, and design have historically aligned with exclusion rather than inclusion, often reinforcing racial and economic hierarchies through concrete and asphalt.

Santa Monica Freeway under construction

Photo Credit: Los Angeles Examiner Collection, USC

Throughout the mid-twentieth century, federal and state highway programs severed urban neighborhoods, displacing families and small businesses to make way for throughways. The placement of these corridors was not coincidental. As documented by the Poverty and Race Research Action Council and others, routes were routinely chosen to pass through Black communities under the logic of **"blight removal,"** clearing land for drivers rather than residents.[46] This form of infrastructural violence erased long-established neighborhoods and imposed new environmental burdens in their place: elevated noise, air pollution, and heat exposure that impact contemporary life.[47]

For disabled individuals, transportation systems often reproduce patterns of inaccessibility that severely limits freedom of movement. Despite the promises of the ADA, physical and informational barriers remain widespread across transit networks. Broken elevators, unannounced or muffled service changes, and platforms without tactile paving or auditory cues disproportionately affect blind, low-vision, and mobility-impaired riders.[48] Many paratransit systems, while federally mandated, are chronically underfunded and difficult to navigate, resulting in long wait times, inconsistent service, and procedural burdens.[49] These obstacles turn basic mobility into a logistical challenge that restricts access to employment, healthcare, and civic life. The exclusion is both structural and social; disabled people are often left out of transit planning processes entirely or included only after litigation or advocacy, rather than through proactive, participatory design.[50]

Efforts to expand public transportation can reproduce these patterns in different forms. Transit-oriented development is often framed as a sustainability intervention, but in the absence of tenant protections or affordability measures, new rail lines or greenway projects can **accelerate housing instability**. In cities like Atlanta, the Beltline has brought new amenities and investment while also driving up costs for long-term residents living nearby.[51] Transit becomes an invitation for capital, but not necessarily for those already relying on public systems. The result is a recurring contradiction: improved service paired with shrinking affordability.

Not all exclusion takes the form of displacement. In many cities, access to transit also entails **exposure to surveillance**. Black and Brown riders are more likely to be stopped, fined, or detained for fare evasion, even when enforcement data shows similar violation rates across racial groups.[52] For unhoused people, fare enforcement and station policing often function as strategies of removal rather than support.[53] The presence of armed officers in buses, trains, and platforms reshapes transit from public infrastructure into sites of surveillance and risk.

Atlanta BeltLine Eastside Trail

Photo Credit: Jeremy Thompson, CC BY 2.0

Outside major cities, many communities contend with the opposite, which is the **absence of mobility and transit.** Tribal nations, rural towns, and unincorporated areas face chronic underinvestment in transportation systems. In tribal regions, fragmented jurisdiction and insufficient funding delay even the most basic improvements to roads, crossings, and transit routes.[54] Similarly, residents in rural counties are more likely to face long distances without adequate service, making daily travel unsafe or unaffordable.[55] Pedestrian deaths and serious injuries are more common in settings where sidewalks, crossings, and traffic safety measures are limited or missing altogether. Indigenous and Black residents are among those most affected, reflecting how inequities in the provision and quality of infrastructure affect the health and safety of priority communities.[56]

These patterns have implications beyond mobility. When transportation systems displace, exclude, or fragment, they contribute to **ecological damage**, intensifying the carbon footprint of daily life. Redevelopment tied to highway or transit expansion often involves demolition and new construction, both of which carry high embodied carbon loads of materials such as rebar and concrete. When informal or low-carbon modes of transport, like walking, shared vehicles, or bus systems, are neglected, which increases emissions, and community-scale sustainability, making measures more difficult to achieve.

In short, the way transportation infrastructure is planned and transit is governed has material consequences for both climate and equity. Prioritizing speed, market demand, or perceived risk over community connection has left many without safe, affordable, or dignified ways to move through space. To confront this imbalance, transportation justice must consider emissions and the histories of removal, exclusion, and infrastructural neglect that continue to shape who moves freely and who is made to wait.

Injustices Related to Climate Risks

The risks associated with climate change, flooding, extreme heat, fire, and drought, have increasingly become a concern. Environmental exposures have continued to impact communities that experience all other injustices within the built environment. Who is exposed or protected has been determined by long-standing land use decisions, planning frameworks, and patterns of investment, or the lack thereof. In many cases, the same communities historically excluded from securing land tenure or public infrastructure are on the frontlines of climate harm. These vulnerabilities are a product of decisions made that contemporarily concentrate risk to low-income, Black, Indigenous, and immigrant communities. As climate impacts intensify, the legacy of planning injustice becomes increasingly visible.

Climate-Driven Displacement

Climate change is reshaping geographies of risk and affordability through gradual compounding processes of displacement. In many communities, repeated flood events, fire, or heatwaves are not met with meaningful adaptation but instead with abandonment, buyouts, or rising insurance costs. These shifts drive out residents who

can no longer afford to stay or lack resources to rebuild, particularly renters and low-income homeowners.[57] In some regions, climate recovery efforts have also been harnessed for speculative development, leading to **"climate gentrification,"** in which elevated or newly protected land becomes desirable for investment, pushing out residents both long-term and in precarious situations.[58] This results in a new form of spatial order, where climate resilience is unjustly distributed along lines of race, class, and age. These dynamics show the recycling of displacement tied to zoning and urban renewal, now with an overlay of climate vulnerability.

Weldon, NC flooded by Roanoke River

Photo Credit: State Archives of North Carolina Raleigh, NC

Flooding

Flooding is closely tied to the legacy of redlining, land dispossession, and zoning that has channeled disinvestment into neighborhoods, allowing for development in high-risk areas. Formerly redlined communities are often located in low-lying or poorly drained sections of the urban fabric, which now face risk and yet continue to receive inadequate infrastructure upgrades.[59] Many of these neighborhoods were never intended to be protected, as their drainage systems were underbuilt, housing stock was neglected, and their needs were excluded from planning processes. As storm events intensify each year, increasing the frequency and severity of flooding, outdated federal flood maps and limited investment in adaptive infrastructure further restrict communities impacted by access to assistance, mitigation, and resilience.[60] Flood risk reflects both climate realities and structural decisions about which neighborhoods in the past and present have been considered worth protecting.

Extreme Heat

Exposure to extreme heat also follows lines of zoning maps, investment patterns, and land cover decisions. Neighborhoods zoned for industrial or high-density uses without green space protections now experience the most intense **urban heat island effects**.[61] These areas lack tree canopy, have limited access to parks, and are covered by impervious surfaces like asphalt and concrete. As a result, residents in these neighborhoods endure higher average temperatures, greater health burdens, and limited access to cooling infrastructure. Heat is exacerbated by poor-quality housing stock, rising utility costs, and unreliable public service. The effects are particularly acute for elders, children, and those with chronic health conditions, many of whom are concentrated in neighborhoods shaped by historic neglect.[62]

Wildfire Exposure

Wildfire risk has intensified in recent years through climate change, land mismanagement, and the spread of development into the wildland-urban boundary areas. In many regions, low-income households, those living with disabilities, undocumented communities, and Indigenous nations are increasingly located in or near high-risk fire zones, not by choice, but because land outside these zones has become unaffordable or unavailable due to exclusion and housing shortages.[63] These areas lack evacuation support, defensible space, and emergency response resources, placing residents in vulnerable positions when there are fire outbreaks. Housing stock in these fire zones tends to be older, poorly insulated, or not built to current fire code standards, and residents lack or are rejected from insurance, home equity, or FEMA eligibility following a disaster.[64] While media attention frequently centers on wealthy homeowners in fire-prone areas, the burden of recovery and exposure falls hardest on those without the means to leave or rebuild.

Wildfire spreads into small village

Photo Credit: Harrison Healey, CC BY 3.0

Insurance and Climate Finance Inequalities

As climate risks escalate, insurance markets are responding with rate hikes, policy cancellations, and coverage withdrawals, disproportionately impacting households and communities of color. In some regions, such as California, insurers have exited high-risk markets, leaving residents without protection and unable to sell, rebuild, or refinance.[65] Public programs meant to close these gaps, like the National Flood Insurance Program (NIFP), often fail to meet the needs of the most vulnerable, in part because eligibility is tied to formal property ownership, building value, or compliance.[66]At the same time, federal climate finance prioritizes resilience projects in wealthier jurisdictions that have a greater capacity to apply for and administer grants.[67] These imbalances in protection and recovery deepen existing disparities, revealing how risk is both disproportionate and acknowledged unequally by systems that are meant to manage climate risks.

Landslides, Drought, and Water Access

Climate stressors beyond flooding and fire, such as landslides, drought, and water scarcity, are also shaped by land use patterns and histories of neglect. Communities built into steep, erosion-prone areas often have done so because safer land was inaccessible or unaffordable.[68] In some cases, these settlements are the result of earlier displacement, **environmental racism**, or land use exclusions that forced communities to inhabit these types of terrain. In rural and unincorporated areas,

drought conditions have led to dry wells, water rationing, and groundwater depletion, especially in agricultural regions where corporate water extraction is prioritized over residential needs.[69] Many Indigenous communities still lack access to clean, reliable drinking water due to broken treaties, underfunded infrastructure, or contested water rights.[70] These slow-moving environmental crises receive less attention than acute disasters, yet they steadily erode the health, autonomy, and resilience of already marginalized populations.

Taken together, these climate-related risks are not isolated hazards but the compounded result of planning decisions, policy failures, and economic systems that have long devalued certain geographies and communities. Patterns of exclusion shape exposure to flooding, fire, drought, heat, and displacement. These disparities showcase that **climate vulnerability** is environmental and structural rooted in land use regimes that have prioritized protection, investment, and resilience for some while rendering others expendable. Addressing these inequalities requires more than technical fixes; it demands a reorientation of planning and policy toward justice, one that centers priority communities, redistributes risk, and recognizes that the pursuit of decarbonization must also confront the histories and harms embedded in the built environment.

Slip-face landslide after consistent rainfall

Photo Credit: Dunedin City Council Archives, CC BY 2.0

As discussed throughout this section, the injustices embedded in the land use and the built environment are numerous. This section provides an overview of layers of injustice and is meant to provide a guide to what local communities should look for in focused work on justice and equity in land use and zoning transitions. While this section may provide a useful start, communities undertaking justice-oriented work should refer to knowledgeable sources in their local community, especially among those who are identified with priority communities.

3

DEFINING EMBODYING JUSTICE

Photo Credit: Office of U.S. Senator Tina Smith.

Guiding Principles

Given the scale of embedded injustices in the built environment, carbon neutral investments or environmentally conscious legislation are insufficient without strategies that center justice in relationships among people, places, materials, and the environment. We contribute to ongoing work in Embodied Justice[1] by offering "*Embodying Justice*" as a process or set of actions that addresses embodied carbon by working towards carbon neutrality in just and equitable ways. *Embodying Justice* is a continuous process that recognizes and remedies past and present harm within the built environment while working toward just futures.

Embodying Justice is grounded in these guiding principles:

Justice is Reparative:

It concerns itself with making right what has been wronged, reconnecting what has been broken, and balancing the imbalanced. Justice acknowledges harm by situating systemic issues, actions, and circumstances in diverse histories. It uses this knowledge to remedy harm by developing and implementing reparative actions.[2]

Justice is Fair:

It equitably distributes social, cultural, political, economic, and environmental benefits and burdens. Justice and equity work together to achieve fairness, as equity focuses on the distribution of resources in the present or future, while justice focuses on redressing past wrongs. As justice repairs, equity ensures that disadvantages associated with injustice are corrected by assessing needs and distributing accordingly.[3]

Justice is Community-Driven:

It centers on those historically oppressed or made vulnerable by systemic injustices and facilitates collective and inclusive processes to move toward repair and fairness. Justice does not come from an aloof authority or lone judge. Instead, it emerges from a community's values, cultures, voices, and processes and thrives on community agency. [4]

Justice is Placed:

Rather than an abstract concept, it is grounded in the specific community context in which it is invoked. It must be embedded in a place's social, spatial, ecological, and material conditions to be real.[5]

Justice is Not a Singular Endpoint:

It is a continuing process of reflecting, acknowledging, and acting. It facilitates the ongoing planning for just conditions and requires investment and commitment to ensure longevity. It requires creative resistance and radical imagination.[6]

Affordable housing and deconstruction in Vancouver, BC

Photo Credit: Ted McGrath, CC BY-NC-SA 2.0

Hunter's Point South Park Queens, NY

Photo Credit: Justin Peng

The Framework

The *Embodying Justice* framework supports justice considerations for strategies that aim to decrease embodied carbon and that more broadly work toward equitable and just land use transitions that work toward climate mitigation and adaptation. As the impacts of injustice in one area are felt in others, attempts to repair injustices will inevitably require more than one approach.

This framework acknowledges the pervasive nature of injustices by encouraging local governments and community organizations, practitioners, and policymakers to consider multiple domains of justice. The first five justice domains (Js 1-5) were present in the first guide and workbook on Circularity and Waste, and are relevant to equitable and just land use transitions. These are: Community Impacts, Economic Impacts, Labor and Workforce, Historical Context, and Community Engagement and Involvement.

Introducing Additional Justice Areas

Two additional Justice areas were added to this guide that pertain specifically to land use and zoning. These include (J6) Transportation, Equity, and Access and (J7) Housing Security, Equity, and Access. These areas of justice emerged in an analysis of the Land Use and Zoning section of the *City Policy Framework for Dramatically Reducing Embodied Carbon*. It is important to note that these justice domains are inherently interrelated and their boundaries are not fixed. They serve as guidelines to organize discussions and actions around justice that move from a singular focus to a systems-based approach.

The following are Justice domains J1 through J7, which are referenced in the question sets and practice stories that follow. These are to be used in crafting new policies or amending existing policies related to reducing embodied carbon. The justice domains are intended to tease apart potential impacts of embodied carbon policies, to ensure that various strategies are reparative and just, that benefits are equitably distributed, and that strategies do not cause harm to communities. The Js are referenced throughout the rest of the guide and workbook. The numbers provide easy reference, but do not represent an order of priority and the Js can be considered in any order that makes sense to the local community.

Community Impacts J1

- Map a strategy's impact across communities (people, places, spaces, ecologies), ensuring equitable distribution of benefits, health, and well-being for priority communities.
- Examine how a strategy's design and implementation reflect priority communities' values, needs, and cultures.
- Consider a strategy's potential to redress past and ongoing harm.

Economic Impacts J2

- Map a strategy's impact on uneven development and local economies, ensuring equitable distribution of benefits for priority communities.
- Examine a strategy's relationship with commercialization, cost, and affordability across communities, identifying opportunities to balance local economies.
- Consider a strategy's potential to develop community-driven approaches for economic growth that aim to redress the impact of extractive development.

Labor and Workforce J3

- Examine a strategy's impact on workers' health and well-being, ensuring equitable distribution of benefits for priority laborers.
- Identify how a strategy can support balancing opportunities and access to the workforce for priority communities that have been unjustly excluded.
- Consider a strategy's potential to invest in worker agency in ways that lead to a more just workplace and field.

Historical Context J4

- Examine how legacies of injustice and resistance can influence a strategy's design and implementation in ways that inform a more just approach in the present and future.
- Contextualize the strategy in local histories through an in-depth reflective process that centers priority communities to make right what has been wronged.
- Consider a strategy's potential to be situated in place by uplifting local stories of people, places, and sites historically abandoned or undervalued.

Community Engagement and Involvement J5

- Examine a strategy's transparency and inclusiveness, ensuring priority communities have equitable access to knowledge, engagement, and opportunities.
- Promote processes that allow a strategy to be co-produced with priority communities through open dialogue.
- Consider a strategy's potential to invest in community-driven approaches that honor community knowledge and values and repair past and ongoing harms.

Transportation Equity and Access J6

- Examine a strategy's impact on transportation access and mobility, ensuring equitable distribution of benefits and protection from harms.
- Promote in-depth reflective processes to determine how the strategy affects the well-being and access to opportunities of priority communities.
- Consider a strategy's potential to repair past harms from the planning and provision of transportation facilities and infrastructure.

Housing Security, Equity, and Access J7

- Examine a strategy's impact on housing security and access, ensuring equitable distribution of benefits and protection from displacement.
- Promote processes that welcome new residents while fostering priority communities' long-term connections to place.
- Consider a strategy's potential to repair past harms from the private and public provision of housing.

4

APPLYING THE EMBODYING JUSTICE FRAMEWORK TO LAND USE AND ZONING POLICIES IN *THE CITY POLICY FRAMEWORK FOR DRAMATICALLY REDUCING EMBODIED CARBON*

Photo Credit: Province of British Columbia

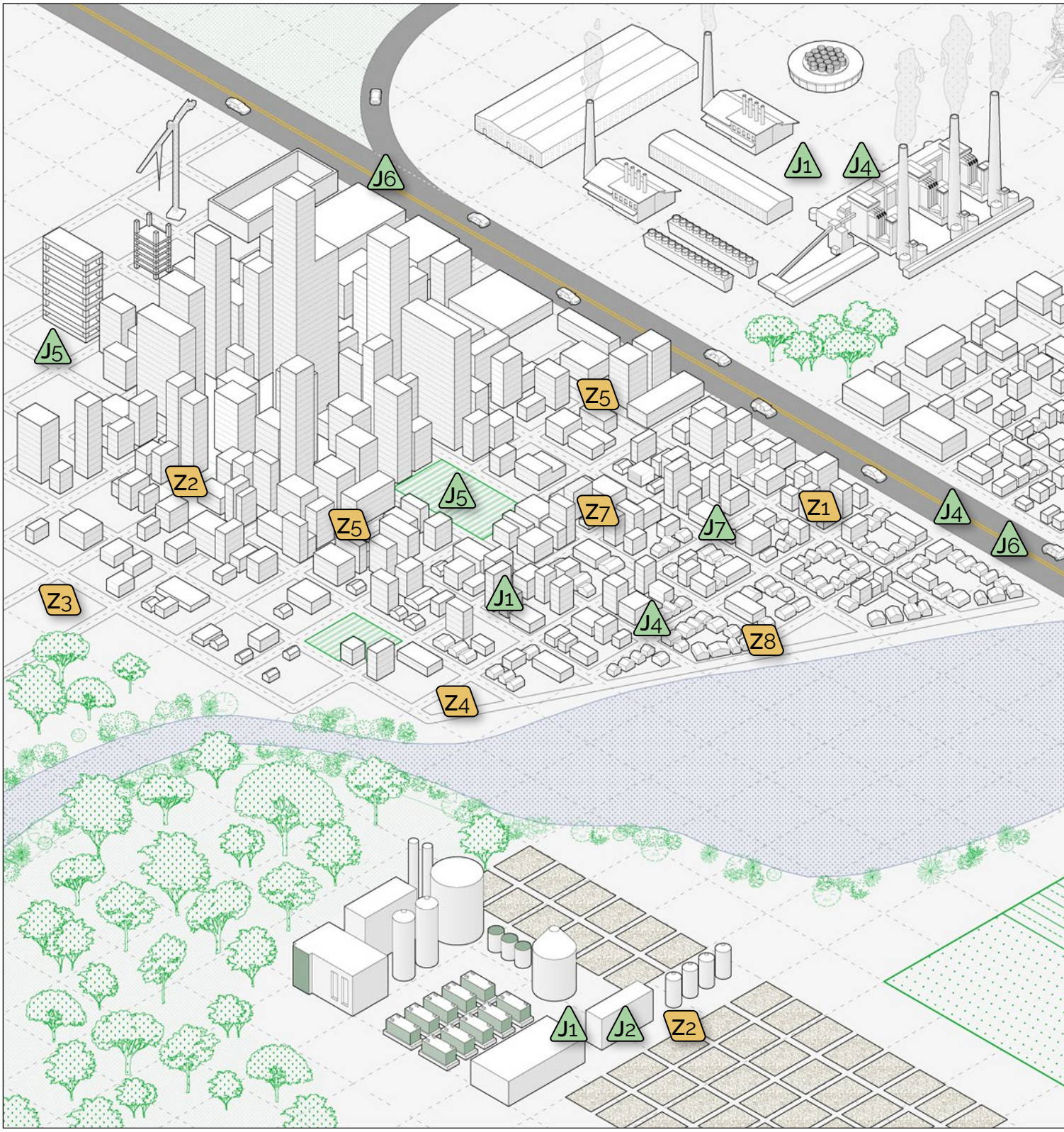
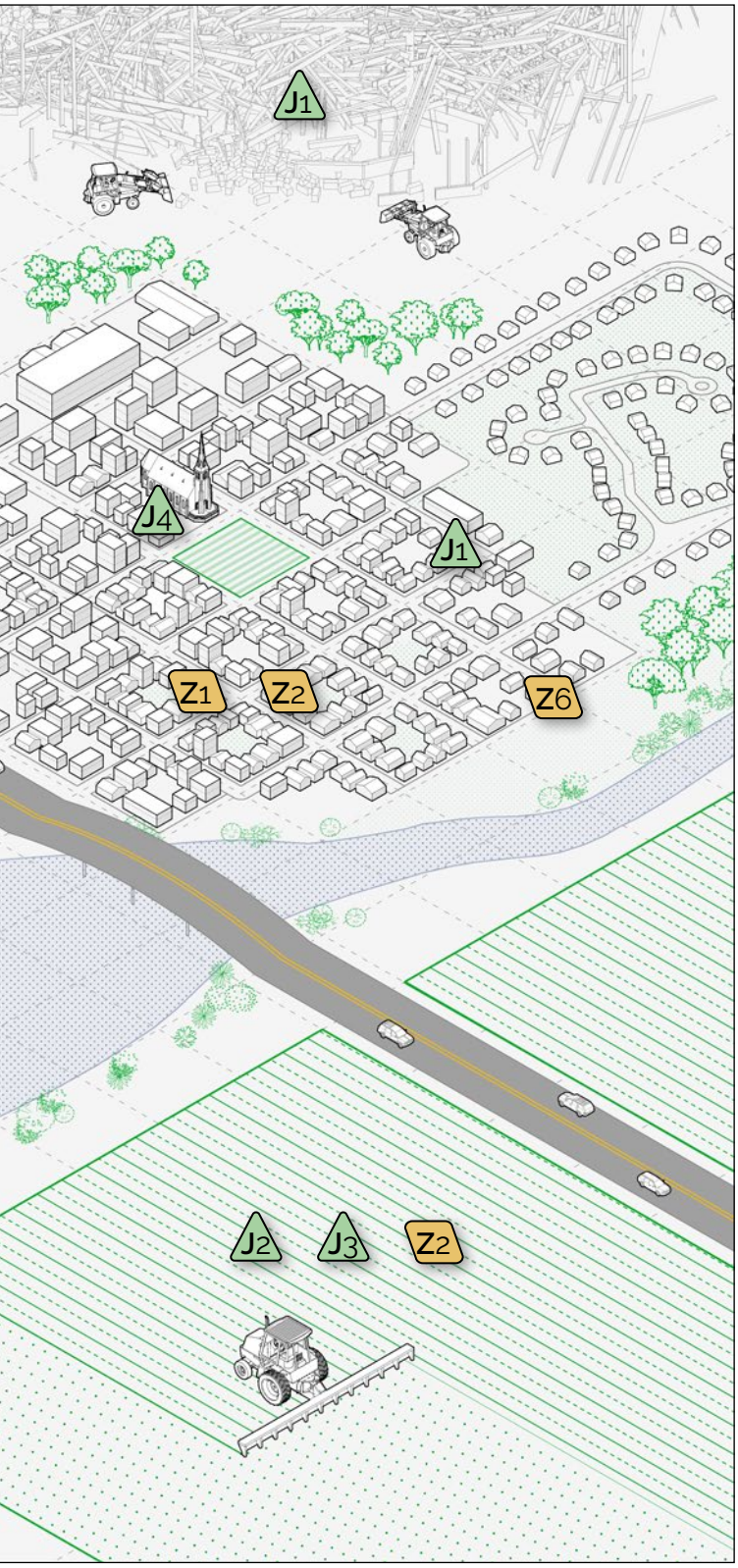


Diagram Credit: Embodying Justice in the Built Environment Team



Justice Areas:

- J1 Community Impacts
- J2 Economic Impacts
- J3 Labor and Workforce
- J4 Historical Context
- J5 Community Engagement and Involvement
- J6 Transportation Equity and Access
- J7 Housing Security, Equity, and Access

Land Use and Zoning Policies:

- Z1 Embodied Carbon Targets for Zoning Process
- Z2 Set Zoning Requirements for Bio-based Materials
- Z3 Carbon Scored Land Sales Competitions
- Z4 Parking Requirement Optimization
- Z5 Apartment Size and Space Efficiency Guidelines
- Z6 Prefabricated or Modular Construction Priority
- Z7 Increasing Density Using Existing Infrastructure
- Z8 Use Low Carbon Building Typologies

This section consists of question sets and action items to consider when creating land use and zoning policies to reduce embodied carbon. References are to the recommended policies for lowering embodied carbon in the Carbon Neutral Cities Alliance and OneClick LCA's Strategies for *Dramatically Reducing Embodied Carbon* (Zs).[1] Each potential question or potential action is coded to particular Justice considerations (J). See page 43 for descriptions of the Js. The question sets can be used in cross-agency discussions and dialogue with stakeholders.

Z1. - Embodied Carbon Targets for Zoning Process

J1 J2 J3 J4 J5 J6 J7

From the *City Policy Framework for Dramatically Reducing Embodied Carbon* summary: "Zoning for new areas or rezoning existing areas can be implemented using carbon evaluation or early phase carbon intensity metrics to ensure zoning is resulting to [sic] [in a] low carbon built environment. Decisions made in the zoning phase have very high potential impact, starting from choosing the land to zone and to build on, moving to determining constraints for density, massing and height. Also parking and transport infrastructure as well as detailed requirements set for the builders are determined in zoning." [2]

This section also encourages the following: "Identify areas where soil is unstable, or is soft and deep, and thus requires very costly and carbon intensive stabilization and foundations; avoid zoning and permitting buildings on such land at all. Such land could be used for less intensive construction." [3]

How have *past* land use planning and development processes created or perpetuated injustices? What are opportunities or pathways for repair and redress?

J1 J2 J3 J4 J5 J6 J7

- Conduct an analysis of land use and urban development history that centers equity and justice. Include the history of housing and transportation in this analysis. Consider historical impacts on commercial and employment centers as well.

How do *existing* zoning and building regulations perpetuate injustices in priority communities?

J1 J2 J3 J4 J5 J6 J7

- Conduct an analysis of existing land use and urban development conditions that centers equity and justice. Include the history of housing and transportation in this analysis. Consider historical impacts on commercial and employment centers as well.

How can *new* zoning and building regulations redress injustices past and present?

J1 J2 J3 J4 J5 J6 J7

- Engage priority individuals and communities affected by injustices to develop an action plan addressing planning practices and zoning regulations.

How do new zoning regulations ensure equitable distribution of benefits, health, and well-being in priority communities? J1 J2 J3 J4 J5 J6 J7

How do new zoning and building regulations reflect the values, needs, and cultures of priority communities? J1 J2 J3 J4 J5 J6 J7

- How can cities ensure that embodied carbon calculations do not override the needs of priority communities? Specifically consider engaging priority communities affected in this process; conduct research to understand how they are affected and how zoning can help alleviate inequalities
- How can cities foster relationships with priority communities to achieve carbon reduction, enhance decarbonization literacy, and create opportunities for community and neighborhood investment that support carbon goals?

How do new zoning reforms respond to other environmental and social imperatives, such as protection from the effects of disasters like flooding, fire, extreme heat, etc.? J1 J2 J3 J4 J5 J6 J7

In addition to conducting analysis of soils that are unstable or soft and deep (as mentioned in *Dramatically Reducing Embodied Carbon* report), consider wider plant and animal communities and their inherent value and potential value to priority communities. J1 J2 J3 J4 J5 J6 J7

Consider how Embodied Carbon targets can be implemented in Accessory Dwelling Units and how the construction of ADUs can benefit priority populations through both new housing options and new mechanisms for maintaining the ability to stay in place as neighborhoods increase in value for members of priority communities. Consider how increases in density through ADUs can be paired with decarbonization goals. J1 J2 J3 J4 J5 J6 J7

How will any costs associated with new zoning requirements be distributed? J1 J2 J3 J4 J5 J6 J7

- Consider whether priority communities could be negatively affected by rising housing costs in areas where zoning reforms are being adopted.
- Develop approaches to public funding and incentives to address any undue burdens on priority communities and low-income residents in the adoption of new embodied carbon targets.

Notes: _____

Z2. Set Zoning Requirements for Bio-based Materials

J1 J2 J3 J4 J5 J6 J7

"Zoning regulations requiring that buildings are built predominantly with wood or other bio-sourced materials (e.g. bamboo, straw) for primary frame and façade from 100 % sustainable sources. Either the zoning or a supporting regulation should require use of wood from sustainable sources."[4]

How could bio-mass requirements impact communities that supply the materials for construction?

J1 J2 J3 J4 J5 J6 J7

- Conduct further research to understand where bio-based materials could be sourced and what impacts this could have on the local community.
- Identify ways to support pilot projects or prototypes in the exploration of not-yet-market bio-based materials. Consider how priority communities are prioritized in supporting these pilots.
- Prioritize and support local or regional sources for bio-based materials. Note: some bio-based materials, such as bamboo and cork, are presently sourced from outside of North America.

How is the growth of small-scale, sustainable manufacturing of bio-based materials incentivized and supported? How are priority communities and minority-owned businesses included and prioritized for this support?

J1 J2 J3 J4 J5 J6 J7

- Consider how priority communities could benefit from economic development opportunities in ways that benefit lower-wage workers and small-scale farmers.
- Note: A recent study of RMI indicated that "large-scale manufacturing facilities tend to dominate the building products market, but in some instances small-scale bio-based manufacturing may be more appropriate" [5] They indicate advantages such as the ability to "start and stop operations more quickly with lower capital risk" and smaller land and energy footprints and reduced permitting barriers.

Notes: _____

Z3. Carbon Scored Land Sales Competitions

J1 J2 J3 J4 J5 J6 J7

"When a city is selling land or granting long term leases on a competitive basis, it can apply life-cycle carbon (comprising materials and energy) efficiency of the proposed project as a scoring factor in the bids with a 30% weighting, or another significant weighing [sic] as appropriate. Bidders must calculate and declare the carbon impact of their proposal."[6]

Ensure that carbon scored land sales do not override the needs and priorities of priority communities and incorporate community involvement in land sales decisions.

J1 J2 J3 J4 J5 J6 J7

Ensure that carbon scored land sales consider historical injustices in the ways in which bids are considered.

J1 J2 J3 J4 J5 J6 J7

- How are smaller-scale developers supported in navigating life-cycle carbon assessment requirements?
- Does the carbon scoring framework include social and environmental co-benefits?
- Note: Carbon scoring could become a tool for accountability—but only if transparency, accessibility, and justice considerations are embedded in its design. If not, it risks reinforcing a technocratic hierarchy where only well-resourced actors can "afford to be green."

Z4. Parking Requirement Optimization

J1 J2 J3 J4 J5 J6 J7

"Review minimum requirement of city parking capacity in zoning and reduce minimum requirements or move to a market-based mechanism for parking place capacity. Market-based construction allows market to price the need for parking places and deliver matching capacity. This saves a significant share of construction costs for parking infrastructure and avoids stranded assets. Parking capacity maximum can be implemented as a supporting measure as required." [7]

Who benefits from the removal of minimum parking requirements—and who may be burdened?

J1 J2 J3 J4 J5 J6 J7

- A shift to market-based parking provision must not assume all residents are equally mobile or served by transit. Without equity-centered transit expansion, this could deepen access divides or push car owners into informal or underregulated parking areas, disproportionately affecting working-class neighborhoods.
- Parking enforcement has long been a site of racialized surveillance and municipal extraction. Reforming zoning without revisiting enforcement regimes may entrench or escalate harm.

Does this shift reduce construction costs in ways that translate to lower housing prices or rents, or are those savings captured solely by developers?

J1 J2 J3 J4 J5 J6 J7

- When parking requirements are reduced, ensure that the cost savings are passed along to tenants.

How can reduction in costs associated with parking result in green space and/or additional community space?

J1 J2 J3 J4 J5 J6 J7

- When parking requirements are reduced, ensure that the cost savings are passed along to tenants.

How can cities coordinate and build their transit systems to facilitate active transportation and public transportation, particularly in priority communities? Synchronize with (electric/electrified) public transit systems and improve pedestrian infrastructure, bike lanes, etc.

J1 J2 J3 J4 J5 J6 J7

- Synchronize with (electric/electrified) public transit systems and improve pedestrian infrastructure, bike lanes, etc.

Z5. Apartment Size and Space Efficiency Guidelines

J1 J2 J3 J4 J5 J6 J7

"The bigger apartments and buildings are, the higher the resulting carbon emissions will be. Minimum sizes for apartments are commonly regulated by cities for some categories, for example for social housing. Reducing or waiving the minimum space requirements for some categories of apartments can allow reduction of embodied carbon. These requirements could be also incorporated with requirements of minimum built-in storage and sizes of rooms. This needs to be balanced with the space and housing needs of the citizens."[8]

How will apartment and building size requirements impact priority and low-income communities and affordable units?

J1 J2 J3 J4 J5 J6 J7

- Removing or reducing these requirements may create opportunities for affordability and diverse living arrangements—but only if paired with strong tenant protections and quality safeguards. Without them, there is a risk of overcrowding or substandard micro-units marketed as affordable but lacking livability.

Will abolishing minimum apartment and building size requirements (re)produce spatial or quality-of-life inequities?

J1 J2 J3 J4 J5 J6 J7

- Consider whether new forms of housing prioritize dignity and health, or simply meet bare-minimum thresholds. Planning standards should assess light, air, storage, acoustics, and access to communal space—not just square footage.

How are buildings and apartment sizes designed for flexibility over time so spaces can adapt to changing household needs without full renovation or demolition and remain healthy spaces?

J1 J2 J3 J4 J5 J6 J7

- Conduct programming analysis for ideal apartment and building sizes to ensure they meet healthy living standards.

Can apartment minimum sizes be reduced or waived through the provision of high-quality shared spaces?

J1 J2 J3 J4 J5 J6 J7

- Consider zoning and building code requirements through the lens of shared common spaces

Notes: _____

Z6. Prefabricated or Modular Construction Priority

J1 J2 J3 J4 J5 J6 J7

"Provide priority for specific types of buildings that have limited lifespans within a district or zoning area to be built only as modular or prefabricated. This policy would be attached with supplementary requirements on disassembly, adaptation and transport capability for these buildings. This should affect only specified building types. Both modular and prefabricated buildings have higher reuse potential than built in place buildings. This policy is particularly important for buildings whose demand fluctuates based on demographic change at shorter cycles or other changes. On the other hand, this policy is counter-productive for building types that have a predictable long-term need."[9]

Many buildings outlive their original intended lifespan. Will prefabricated or modular buildings that serve priority communities be eligible for the needs of residents in the long term?

J1 J2 J3 J4 J5 J6 J7

- Consider how related city policies and programs can ensure energy retrofitting and refurbishment support in the future.
- Consider how related city policies and programs can ensure reliance in the face of climate change and periodic weather events.
- Consider planned obsolescence in modularity, which can occur within the building design process. Prefabricated construction can reduce upfront costs and carbon impacts, but without clear reuse and maintenance plans, these buildings risk becoming disposable.

Which communities are being targeted for temporary or modular construction, and under what justification?

J1 J2 J3 J4 J5 J6 J7

- This framing risks reproducing second-tier infrastructure in priority communities. There must be transparency and community input into where and why modular is proposed, and strong policy guardrails to prevent long-term underbuilding.

Notes: _____

Z7. Increasing Density Using Existing Infrastructure

J1 J2 J3 J4 J5 J6 J7

"Transport, water, energy, and other infrastructure already in place can often be upgraded at less cost and carbon to increase capacity than building infrastructure for new areas. Such upgrades may allow increased density within the affected districts. This policy can rezone existing plots for a density increase. Re-zoning single-family home/detached housing plots for more dense forms of construction can increase utilization of infrastructure significantly."[10]

Will removing single-family zoning result in more housing, particularly housing that is affordable? Are there other barriers, like permitting, financing, lot size, or private sector investment practices, still preventing change?

J1 J2 J3 J4 J5 J6 **J7**

- Financial structures, speculative development, and construction costs often result in high-end units unless paired with affordability mandates, tenant protections, and accessible financing for small-scale developers.

Is the loss of urban fabric in priority communities, such as demolishing existing single-family structures to make room for new, denser buildings, resulting in displacement and permanent loss of affordable housing?

J1 J2 J3 J4 J5 J6 **J7**

- Reform efforts should consider administrative simplification, community-based lending models, and support for incremental housing.

Have strategies to increase density, especially in priority communities, considered zoning reforms that would encourage the repurposing of vacant or underutilized spaces for new uses, including housing?

J1 J2 J3 J4 J5 J6 **J7**

- Consider whether an adaptive reuse ordinance would be appropriate.[11]

Does zoning reform of single-family zones allow for or incentivize retrofitting existing homes into duplexes or ADUs? Are incentives and support for conversions accessible to low- and moderate-income homeowners?

J1 J2 J3 J4 J5 J6 J7

- Without targeted programs, conversions risk benefiting only well-resourced homeowners or investors. Public subsidies, low-interest loans, and streamlined permitting should be prioritized for long-term residents and communities facing housing pressure.

Does zoning reform of single-family residential zones include prioritizing transit centers/corridors/systems (or other infrastructure) improvements that increase density?

J1 J2 J3 J4 J5 J6 J7

- Planners must safeguard affordability near transit and ensure that investments benefit existing residents.

Is the loss of embodied carbon associated with existing building demolition being addressed? Are other values associated with the loss of existing buildings addressed in priority communities?

J1 J2 J3 J4 J5 J6 J7

- Demolition in historically redlined or disinvested areas can unintentionally deepen erasure. Without protections, new density becomes a vehicle for gentrification rather than equity. Consider programs to preserve affordability, such as land trusts or tenant first-right-of-refusal policies.

Z8. Use Low Carbon Building Typologies

J1 J2 J3 J4 J5 J6 J7

"Building typology and massing influence embodied carbon: for example, extremely tall buildings require greater quantities of structural materials that are generally high in embodied carbon. Also, buildings with inefficient massing also require greater quantities of material. Through zoning regulations, a jurisdiction with zoning authority can require building heights to be within an identified carbon-optimal range, and enforce prescriptive requirements for building typology and massing. Similar to the ways zoning laws are used to set requirements for building setbacks, heights, use, and typology. Any policy of this type needs to be designed in a way that does not result into urban sprawl, that can lead into far higher infrastructure construction."[12]

How can affordability be ensured for priority communities? J1 J2 J3 J4 J5 J6 J7

- Policies that prioritize carbon-optimal massing and building types should include mechanisms to prevent cost pass-through to tenants or buyers in priority communities. Approaches may include subsidies, land trusts, cooperative housing models, or affordability-linked incentives to ensure that sustainable buildings do not become a luxury offering that exacerbates exclusion.

Can low-carbon typologies be aligned with strategies for affordable housing, such as Accessory Dwelling Units (ADUs), co-ops, or small-scale infill? J1 J2 J3 J4 J5 J6 J7

- ADUs present a key opportunity to increase gentle density while supporting climate and equity goals. When built with sustainable materials—such as mass timber or recycled content—and designed for future disassembly or reuse, ADUs can align with embodied carbon goals. Programs should provide grants, technical support, and template designs for low-income homeowners or multigenerational households.
- Consider how Low Carbon Building Typologies can be implemented in Accessory Dwelling Units and how the construction of ADUs can benefit priority populations through both new housing options and new mechanisms for maintaining the ability to stay in place as neighborhoods increase in value for members of priority communities. Consider how increases in density through ADUs can be paired with decarbonization goals.

Are there mechanisms in place to ensure priority communities can benefit from the construction of low-carbon buildings, not just their outcomes? J1 J2 J3 J4 J5 J6 J7

- Workforce equity must be embedded in implementation. That means prioritizing local and minority-owned businesses in fabrication, modular assembly, and sustainable material sourcing. Construction apprenticeships, community college partnerships, and on-site training for disassembly, repair, and reuse skills can build economic resilience alongside decarbonization.

Notes: _____

5

FROM EMBODIED CARBON REDUCTION TO REPARATIVE LAND USE PLANNING: INTRODUCING PRINCIPLES AND PRACTICE STORIES

Photo Credit: Beacon Hill Food Forest

In addition to considering land use and zoning policies focused on reducing embodied carbon as detailed in the previous section, local governments and community organizations can consider a broader array of reparative land use approaches. The following are reparative approaches that reconsider the ways land use is stewarded, shared, maintained, and developed to apply justice to land use and land regulation. They promote a holistic approach to land use transitions.

Tanner Springs Park in Downtown Portland, OR

Photo Credit: Justin Peng

The regional interconnectedness of communities must be considered in moving toward a holistic and reparative approach to land use. Central cities are linked to neighboring communities in a region and vice versa. Some recommended policies for reducing embodied carbon illustrate the environmental, economic, and social ties between rural and urban communities. This includes the proposed use of bio-based materials that may be produced in rural areas within a region and then, ideally, used for new construction within the same region. Thinking at a regional scale helps highlight both potential areas of imbalance or injustice and opportunities to bring systems into balance. Many past injustices within cities are tied to flows of people, money, and power, and the inclusivity or exclusivity of communities within the region. In the U.S., this includes redlining of central city neighborhoods, suburbanization, and white flight. It includes the ways in which local and federal policies have incentivized communities to be racially and economically segregated. Other examples include the planning of transportation infrastructure in ways that offer mobility through the region at the expense of neighborhoods that are divided by new highways.

From an environmental sustainability perspective, just and equitable land use transitions require a land management approach that aims to achieve holistic carbon neutrality by considering all aspects of land use. Approaches include carbon sequestration through forests and soils, minimizing emissions from agricultural practices, and actively restoring degraded ecosystems. This means maintaining biodiversity and other ecological functions in building construction and urban planning. By considering all aspects of land use, different practices can work together to maximize carbon sequestration and environmental benefits. A diverse landscape can be more resilient to climate change impacts like drought and flooding. Holistic land management can also provide benefits like improved water quality, biodiversity conservation, and sustainable livelihoods for local communities.

Sometimes it is assumed that nature and ecological systems are absent from cities. Nature may be negatively affected, and much of the operation of an urban system may be unsustainable, but that does not mean soil, water, plant, and animal communities should be ignored in heavily developed areas. Instead, rebalancing

natural systems should be prioritized. Care for plant and animal communities should be integral to the ethics of land use decision-making and can also repair natural systems that positively benefit human communities while reducing emissions associated with the care and repair of urban areas.

Land use policies, especially zoning reform efforts, must never consider land to be a "blank slate." Land management and zoning changes affect permitted ways of living, working, and playing on the land. When land is rezoned for new, higher-density uses, communities of existing residents must be considered. From a justice perspective, this means that cities have a responsibility to ensure new zoning causes no harm, such as displacement of residents.

In building new urban neighborhoods and districts, the embodied carbon associated with existing building stock must be factored into efforts at rezoning. Planners also have an ethical responsibility to conserve and consider the expenditures of greenhouse gases in the existing built environment and to consider how to prolong the lifespan of those materials. To bring urban areas into balance and create reparative systems of land stewardship, systems of accounting for embodied carbon must acknowledge incorporation of reclaimed materials where carbon emissions have already taken place. In addition, there should be priority in the use of sustainably produced materials on nearby lands within or close to the city. This type of localization can benefit local communities economically through the sustainable production of building materials within the region. This may support greater regional specificity in appropriate bio-materials as well as the sustainable cultivation of land.

Indigenous and local knowledges are essential to managing land in sustainable ways within cities. The dispossession of Indigenous lands and their transformation into the urban areas that exist today are the direct result of the colonial strategies in many parts of the globe. This transformation lays the groundwork from which planners are able to practice their craft, constituting planners as one of the de facto professions that actively articulate land relations on behalf of non-Indigenous governments and the constituents they serve. The presence of Indigenous peoples in many Settler State cities continues to be underrepresented and reflects the perceived disconnect between the Indigenous and the city and, by extension, Indigenous peoples and modernity. However, urban indigeneity is nothing new. There exists great opportunities for Indigenous peoples and municipalities to collaborate in redefining what it means to be in relation with the land. Given the problems caused and exacerbated by the climate crisis, the contributions of Indigenous peoples in land management and sustainability to address these issues within cities cannot be understated.

Indigenous knowledges are essential in sustainably managing land in urban areas and within regions. This knowledge has been developed over countless generations of observation, refinement, and implementation by Indigenous peoples who continue to maintain relations with their territories. Coupled with the experience of colonization, Indigenous peoples are uniquely positioned to account for the change in land management over time with the growth of settler societies and the development of cities. Moreover, it is not only the practice of land management in

urban areas and surrounding regions that has changed, but also the underlying values and principles that inform such strategies. As such, urban areas and society at large must seriously reconsider how plans to manage lands accomplish sustainability goals in the path forward. Indigenous peoples, their knowledge, and cultural practices offer an alternative insight into sustainable living in relation with the land. This endeavor to collaborate, however, must also ensure that Indigenous peoples' sovereignty and self-determination are promoted in the process. Local government agencies should work with local and Indigenous communities to apply, record, and share Indigenous knowledges in ways that are ethical and respectful of these communities. In addition to urban Indigenous communities, local, state, and federal government agencies should work with sovereign tribal governments to further ethical and sustainable management of embodied carbon across jurisdictions.

Shared land ownership and care, including decision-making and use of land, is essential for communities to consider. Prior to the establishment of property/land ownership regimes, land was cared for collectively by Indigenous people. Examples abound in the use of land conservancy land trusts where joint learning and decision-making processes are established that enable the use of land as a shared resource. Shared equity can help in the movement to sustainable, low carbon means of managing the land.

Seńáḵw Redevelopment over old BCE Railway

Photo Credit: "Seńáḵw" by Stephen Rees, CC BY-NC-ND 4.0

Practice Stories

The following practice stories that follow are meant to illustrate the work of Canadian and U.S. local governments, Indigenous nations, and community organizations in achieving carbon neutrality and justice in communities across North America. Following each of the practice stories are workbook questions to aid in gaining insights from these stories and considering elements in your community. Practice stories highlight various areas of land use transition, including building design, use, and adaptation to housing access and affordability, to transportation access and infrastructure, to land care and adaptation.

The practice stories are organized by those with policies most closely associated with the *City Policy Framework for Dramatically Reducing Embodied Carbon* framework to practice stories that illustrate equitable and just land use strategies that pertain to carbon neutrality but may not appear among the Land Use and Zoning strategies of that guide. The Js of the *Embodying Justice* in the Built Environment framework and the Zs of the Land Use and Zoning policies in the *Dramatically Reducing Embodied Carbon* framework are referenced throughout.

Please note: The practice stories and questions that follow them were crafted by multiple authors and involved contributions from individuals from community organizations and local governments. Each story also relates to a different context. Practice stories and question sets and activities are not identical in format and content.

P1 | Transforming the City: Embodied Carbon, Housing Justice, and Reconciliation

P2 | Betances Residence: Supportive Housing for Seniors Built to Passive House Standards

P3 | Advancing Housing Equity, Climate Goals, and Just Zoning Reform

P4 | Community Gardens:: Cultivating Justice and Low-Carbon Futures

P5 | Community Benefits Ordinance: CBOs and CBAs as Models to Promote Equitable Development and Lower Embodied Carbon

P6 | Rondo CLT: A Reparative Model for Just Neighborhoods and Community Wholeness

P7 | Re-Interpreting Highest and Best Use through Tribal Land Back Arrangements

P2 *Bronx, NY*

Photo Credit: Frank Oudeman

P1 *Vancouver, BC*

Photo Credit: Brad Greenlee, CC BY 2.0

P3 *National Zoning Atlas*

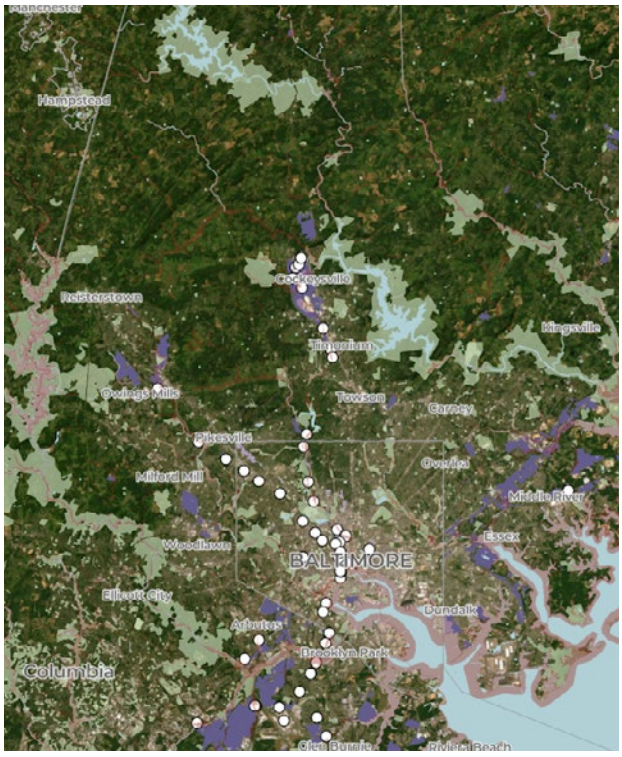


Photo Credit: Land Use Atlas, Inc.

P4 *Seattle, WA*

Photo Credit: Beacon Hill Food Forest

P5 *Detroit, MI*

Photo Credit: Maia C, CC BY-NC-ND 2.0

P6 *St. Paul, MN*

Photo Credit: Rondo Community Land Trust

P7 *Eureka, CA*

Photo Credit: TR BAKER, CC BY-SA 3.0

PRACTICE STORY 1:

Transforming the City: Embodied Carbon, Housing Justice, and Reconciliation

Vancouver, BC, Canada

Description:
Affordable housing initiatives that address carbon neutrality while promoting justice and reconciliation

Carbon Neutrality (Zs):

- **Z1** Embodied Carbon Targets for Zoning Process
- **Z2** Set Zoning Requirements for Bio-based Materials
- **Z4** Parking Requirement Optimization
- **Z5** Apartment Size and Space Efficiency Guidelines
- **Z7** Increasing Density Using Existing Infrastructure
- **Z8** Use Low Carbon Building Typologies

Embodying Justice (Js):

- **J1** Community Impacts
- **J2** Economic Impacts
- **J3** Labor and Workforce
- **J4** Historical Context
- **J6** Transportation Equity and Access
- **J7** Housing Security, Equity, and Access

Involved Jurisdictions
City of Vancouver, Swx&wú7mesh Úxwumixw (Squamish Nation), Musqueam, and Tsleil-Waututh Nations

The City of Vancouver, BC, and its metro area have a demonstrated commitment to addressing climate change. This leadership is detailed in the next section. It is essential to understand that Indigenous nations in the region are also leading the charge to address historical injustices, while constructing housing to meet regional shortages and address the needs of Indigenous community members.

Climate Actions Adopted by the City of Vancouver

The City of Vancouver has taken large strides in addressing carbon neutrality and has emerged as a climate leader. In 2016, it was one of the first cities in North America to adopt a roadmap to require all new buildings to be carbon neutral by 2030 when it adopted a Zero Emissions Building Plan.[1] The City of Vancouver has required embodied carbon reporting through their Green Building Policy for Rezoning since 2017.[2] In 2020, Vancouver set its first embodied carbon reduction target of 40% reduction in new buildings by 2030, in the Climate Emergency Action Plan.[3] They also published an Embodied Carbon Strategy in 2020, detailing the actions to achieve the target set and sets a vision of a healthy, equitable, circular, carbon-positive construction economy.[4] The Embodied Carbon Strategy includes various actions designed at different levels. These range from implementing mandatory embodied carbon regulations via updates to the building code; identifying and removing barriers, while providing incentives thr-ough city plans, by-laws, policies, and guidelines; to shifting the broader urban context by integrating these measures into complementary city initiatives like low-carbon neighborhood planning.

In 2022, Vancouver approved changes to the Vancouver Building By-law (VBBL), Vancouver's building code, to require embodied carbon reporting and later reduction in larger new buildings.[5] To enact this, Vancouver developed Embodied Carbon Guidelines in 2023, that provide technical guidance on modeling embodied carbon emissions and demonstrating compliance with the requirements. These Guidelines were adopted by the National Research Council (NRC) of Canada as the National Whole-building Life Cycle Assessment Practitioner's Guide,[6] creating a single national framework to develop performance-based policies to reduce embodied carbon.

Downtown Vancouver Skyline

Photo Credit: Justin Peng

In 2025, Vancouver updated their VBBL to reference the National Guide with a Vancouver-specific Addendum.[7] The Addendum integrates measures to support industry leadership into an embodied carbon assessment framework, including accounting for short-cycle biogenic carbon, such as salvaged wood, and introducing Industry Leadership Credits, which offer up to a 5% embodied carbon reduction relaxation for reporting additional wbLCA data (e.g., optional building element emissions and construction site emissions) and incorporating reuse practices.[8] The updated framework in Vancouver's Addendum to the National Guide, integrates zero-waste and embodied carbon reduction measures and encourages reuse of buildings and materials by:

- Counting reused materials as zero carbon (See National wbLCA Practitioner's Guide).[9]
- Recognizing carbon stored (biogenic carbon) in salvaged wood and waste-derived bio-based materials (see Addendum to the National wbLCA Practitioner's Guide).[10]
- Offering reduction credits for salvaging materials, relocating buildings, or designing for disassembly. This has allowed zero-waste actions to be accounted in our embodied carbon policies for the first time in North America (see Introducing Industry Leadership Credits (ILCs) in Appendix to the Addendum).[11]

This approach is already gaining traction – for example, the CAGBC's ZCB-Design Standard Pilot for Part 9 Buildings references the reuse ILCs.[12]

The City's Green Demolition Bylaw was also updated in 2019, requiring a minimum amount of salvage in the removal of heritage-listed homes and those built before 1910, and the reuse and recycling of materials from some homes built before 1950.[13] Following the success of the industry in adapting these practices, a number of other municipalities in B.C. implemented similar by-laws with various levels of mandatory and educational processes (e.g. District of North Vancouver and City of Victoria).

Vancouver has also been working to remove zoning and code barriers and provide incentive for building with mass-timber, including additional density for mass timber in rezoning applications (2-3 storeys), extra height for applications under existing zoning (10%), and additional support at the pre-application stage.[14]

A Housing Crisis in the Vancouver Region

In the midst of planning for a more sustainable and circular future, the City of Vancouver must also contend with a housing affordability crisis and a history and present reality of severe social and economic inequities. In the most recent Housing Progress Report, the City estimated "approximately 86,000 existing households in need, and potential future demand from 50,000 additional households over the next ten years."[15] These reflect conditions across the Vancouver metro area that "fall disproportionately on equity-denied groups - including residents who are from Indigenous and racialized communities, seniors, single-parent households, and 2S/LGBTQIA+ - facing increased risk of housing insecurity, displacement, and homelessness."[16]

Zahra Teshnizi, Senior Planner at the City of Vancouver, leads the work on implementing the City's Embodied Carbon Strategy from 2023. She has been involved in the *Embodying Justice in the Built Environment* project since its first phase. In an interview, she made direct connections between embodied carbon reduction policies and land use planning and zoning, including efforts to increase rental housing supply and affordability and reduction of embodied carbon. Ms. Teshnizi noted that there are areas of potential synergy between planning for affordable housing and lowering embodied carbon. A recent shift from the construction of condos to affordable and market-rate rental apartments buildings has shown potential benefits in lowering embodied carbon intensity due to the prevalence of wood-framed low/mid-rise rental buildings. Additionally, a reduction in parking spots and underground parking in affordable rental housing also has a significant impact on the embodied carbon reduction associated with new construction.

She pointed out that in general, design efficiency strategies can reduce material use, lower embodied carbon and construction costs, and thus contribute to housing affordability. In other words, embodied carbon policies are not only at odds with housing affordability but can rather have synergies. Moreover, savings achieved through design efficiency solutions can open up space to procure low-carbon materials. And since many Canadian-made materials/products (like cement and mass timber) are already among the lowest-carbon options globally, encouraging low-carbon construction boosts demand for locally manufactured products.

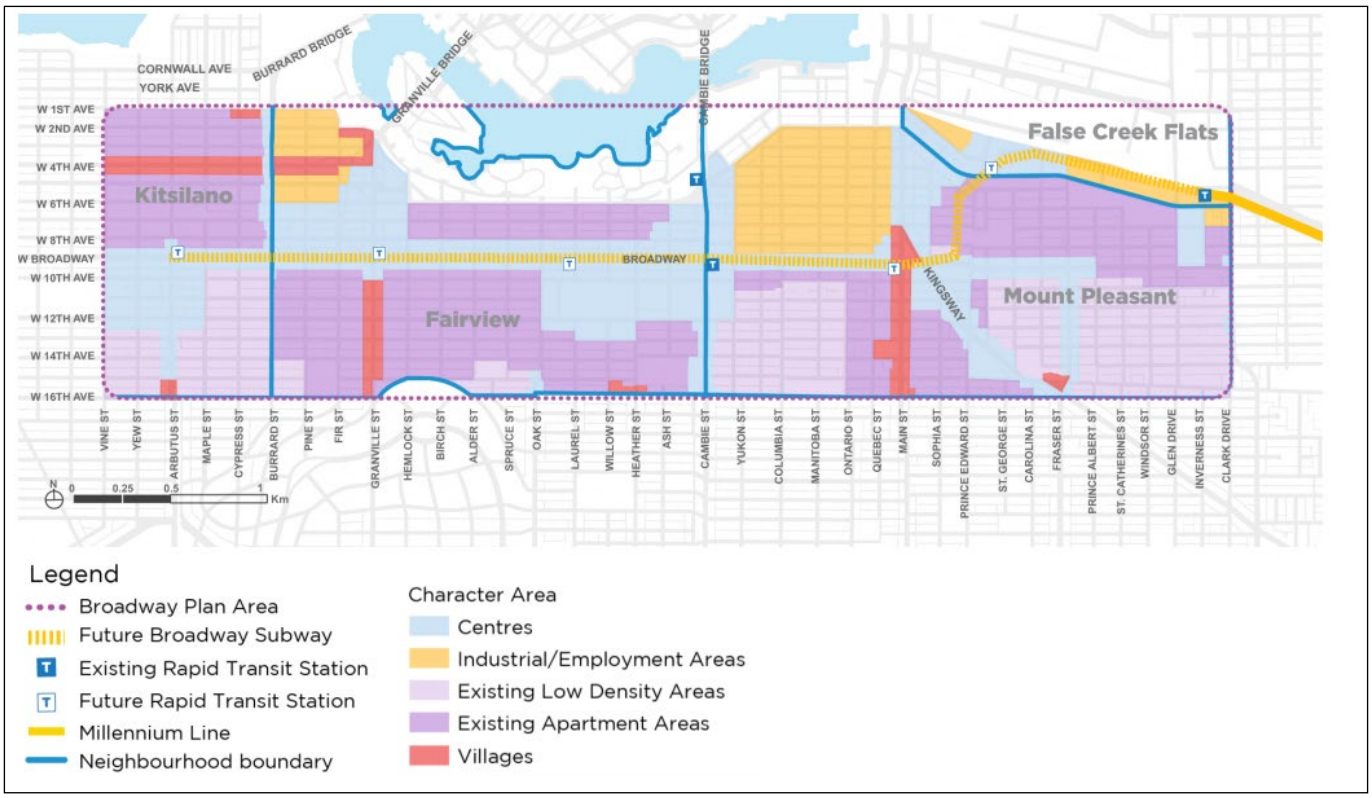
Multiple studies and local case studies have shown how embodied carbon reduction can be achieved at no cost premium or reduced cost, through solutions like using wood frame structure, reduction in underground parking levels, and layout and structural design efficiencies that contributed to reducing concrete transfer slabs.[17] These

developments in the City of Vancouver highlight the potential synergies between working toward zoning reforms that guide development toward building typologies that support both affordable housing and embodied carbon goals. (See the National Zoning Atlas practice story, which is a tool to consider zoning reforms that can aid communities in working toward housing goals.)

An example of land use planning that incorporated complimentary strategies to enable embodied carbon reduction and housing affordability is the Broadway Plan.[18] Much of the plan aligns with a 6-18 storey building height which is the optimum to provide more housing with less embodied carbon, when compared to high-rise or low-rise neighborhoods.[19] This height enables using wood-frame and mass timber structures. The plan also allows for simplified building forms that allows for layout and structural design efficiencies that contribute to reducing material use through minimizing the need for the use of load transfer structure. Simpler forms are also conducive to the use of lower-carbon building materials like mass timber. The plan also allows for reducing the need for underground structures.

Downtown Vancouver view from West Broadway

Photo Credit: Kyle Pearce, CC BY-SA 2.0



In the image above:

Character Area	Approx. Max Heights Allowed	Construction Type Expected
Centres	90% higher than 18 storeys	Concrete, possibly with some mass timber
Villages	6 storeys	Mix of wood-frame, concrete, and mass timber
Residential Areas: Existing Apartment Areas (RM)	mix of 6 to 18 storeys, with up to 20 storeys	Mix of concrete and mass timber
Residential Areas: Lower Density Areas (RT)	6-storeys, except up to 18 storeys close to transit	Wood-frame, with some concrete or mass timber
Industrial / Employment Areas	8-11 storeys	Mix of concrete and mass timber

Senákw: an Indigenous Nation-Led Housing Development on Returned Land Unjustly Seized

An Indigenous nation-led partnership in the Vancouver metro area is building the "largest net-zero operational carbon residential project in Canada."[20] The Swx&wú7mesh Úxwumixw (Squamish Nation); Nch'ay Development Corporation, which is the Squamish Nation's economic development arm; and Westbank Projects Corp. are partnering as Nch'ay West to develop Senákw, a 4 million-square-foot development that includes more than 6,000 rental homes and more than 1,200 affordable homes. The mixed use Senákw development is being developed on lands seized by the Canadian Government in 1913. A total of 10.48 acres of the original 80 acres were returned by the Federal Court of Canada in 2003.

The development is described as advancing reconciliation and benefiting all residents of Vancouver:

> *"The new development at Senákw demonstrates that reconciliation need not be zero-sum. It will ease Vancouver's housing shortage, will create tens of thousands of square feet of publicly accessible amenities, and will contribute tens of millions of dollars to service improvements in the City of Vancouver.*
>
> *When First Nations utilize their lands for value creating developments within their jurisdiction, everyone benefits. This project is a legacy for the Squamish Nation, but also for the City of Vancouver - and for all of Canada."*[21]

The Senákw project is located right across from Vancouver's downtown core. It is also exempt from the City of Vancouver's requirements for low energy and carbon buildings, including embodied carbon, as it is situated on reserve land that is governed by the Squamish Nation. While exempt from the CIty of Vancouver's requirements, it is contributing to the wellbeing of the Squamish Nation and regional sustainability goals. This mixed-use development includes elements that lower operational and embodied greenhouse gas emissions.

Phase 1 of the project reduced cost by 30% and embodied carbon by 22% compared to a functionally equivalent baseline, mainly through design efficiency measures such as transit-oriented design that significantly reduced the need to construct underground parking, as well as choosing to slope the columns and align them to the below-grade structure, which enabled the elimination of load transfer structures.[22] Phase 2 of the project will include the construction of a commercial building that will utilize 45,000 square feet of mass timber construction, reducing embodied carbon as compared to the use of concrete. In addition, the project includes district heating and cooling "that will utilize excess heat from adjacent Metro Vancouver infrastructure to provide a source of carbon free energy for the project."[23]

Musqueam, Squamish, and Tsleil-Waututh Nations and the Jericho Lands Project

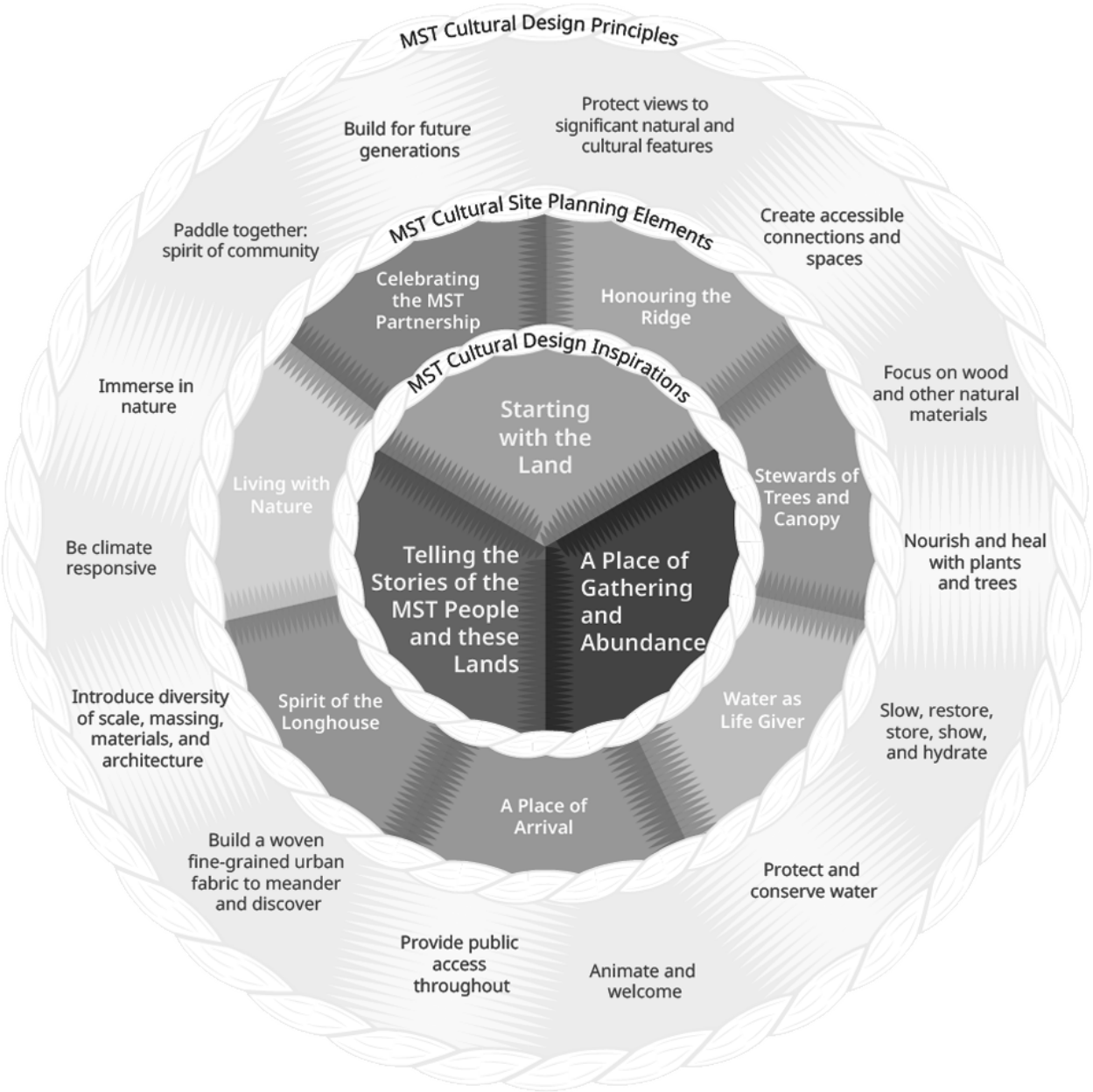
The Vancouver City Council recently approved an official development plan (ODP) for the Jericho Lands project led by the Musqueam, Squamish, and Tsleil-Waututh Nations on their unceded traditional lands. The completion of the əyalməx/ly álmexw/ Jericho Lands project will create a denser, more transit-friendly, and sustainable community in West Point Grey, a community traditionally populated with single-family homes. Approved in April of 2025, the 90-acre site features the creation of 13,000 homes ranging from four- to 49-storey buildings, with 20 percent dedicated to social housing and another 10 percent to secured rentals. In addition to housing, the project plans to create over 3,000 jobs, parks, schools, cultural areas, and a SkyTrain station. The ODP describes the cultural design principles used to create the plan:

> *The Musqueam, Squamish, and Tsleil-Waututh Cultural Whorl was created from the knowledge, stories, and input shared by local Nations' community members. It weaves a pattern of interconnected cultural design inspirations, cultural site planning elements, and cultural design principles that will blanket əy alməx/ ly álmexw/Jericho Lands with the local Nations' culture.* [24]

Opposition to the Official Development Plan (ODP) for the Jericho Lands site has been led by the Jericho Coalition—a group of residents, planners, architects, and advocates formed in response to the proposed redevelopment. The coalition describes itself as advocating for a "missing middle" housing strategy that embraces a range of human-centered housing types, including low to mid-rise buildings, townhomes, and green-roofed structures. They say that they promote climate-responsive design practices, such as the use of mass timber modular construction to reduce embodied carbon while also calling for affordable housing options.

However, the coalition's critiques have also drawn criticism, particularly for undermining Indigenous governance and self-determination. Some view their opposition as a movement that could hinder the ability of the involved First Nations to determine and address their own housing and community needs on their traditional lands. While the Jericho Coalition frames its concerns in terms of sustainability and neighborhood character, its stance has also been interpreted as resistant to both reconciliation and much-needed higher-density, inclusive housing solutions.

Despite the opposition, the development plan was unanimously approved by all seven councillors present at a Vancouver City Council meeting. The decision affirmed the right of the Musqueam, Squamish, and Tsleil-Waututh Nations to shape a development that reflects their cultural values, priorities, and aspirations—demonstrating a commitment to both sustainability and Indigenous self-determination in the urban core of Vancouver.



Musqueam, Squamish, and Tsleil-Waututh Cultural Whorl

Figure 1. Musqueam, Squamish, and Tsleil-Waututh Cultural Whorl from City of Vancouver. əyalməx/lyálmexw/Jericho Lands Official Development Plan

Practice Story Questions

Q1. What are the opportunities for synergy between lowering embodied carbon and working toward housing justice in this practice story?

A. This practice story illustrates how a city that has adopted many embodied carbon requirements is finding common ground with the building typologies associated with affordable housing. There are further opportunities to analyze and act to calibrate zoning regulations with both the need for housing and building prototypes that reduce embodied carbon.

This practice story highlights how the Swx&wú7mesh Úxwumixw (Squamish Nation) is an example of how land returned to the nation through the legal system is now being used to meet climate and community development goals as defined by the Squamish Nation. The development incorporates features that are culturally appropriate while lowering embodied carbon and increasing housing supply.

Workbook:

Equitable Design and Implementation

The following questions are guides for considering embodied carbon and housing justice. Fill in initial thoughts here that can be used in developing next steps in your community.

1. Are new housing developments associated with affordable housing getting built in ways that reduce embodied carbon? Examine examples of newly constructed or major rehabilitation projects. What zones are they in? What types of development trends might be lowering embodied carbon either in new construction methods and materials, building or building material reuse, or reduction of parking infrastructure?

2. Are there opportunities to revisit zoning and building codes in your community? When was the last time land development codes were comprehensively considered in your city?

3. This practice story discusses the development of housing on land that was returned to the Squamish Nation, as well as land owned by the Musqueam and Tsleil-Waututh Nations. Are there opportunities to support Indigenous-led development projects in your community? Where could land back programs be considered in your community? (see also the Rondo CLT and Eureka practice stories on pages 111 and 119).

PRACTICE STORY 2:

Betances Residence: Supportive Housing for Seniors Built to Passive House Standards

Mott Haven, Bronx, New York

Description:
High-quality, low-carbon housing for the formerly homeless; 152 supportive housing units and 10,600 sq ft community space and amenities. Constructed in 2022.

Carbon Neutrality (Zs):

- **Z2** Set Zoning Requirements for Bio-based Materials
- **Z5** Apartment Size and Space Efficiency Guidelines
- **Z8** Use Low Carbon Building Typologies

Embodying Justice (Js):

- **J5** Community Engagement and Involvement
- **J7** Housing Security, Equity, and Access

Project Partners:
Developer: Breaking Ground
Architect: COOKFOX Architects
The project team: Civil Design Works, Dagher Engineering, Haley Aldrich, Houghton Acoustics for Architecture, Monadnock Construction, Inc., Steven Winter Associates, Terrain-NYC Landscape Architecture, William Vitacco Associates (WVA), WP Moore, and WSP; Social Services: Center for Urban Community Services

Breaking Ground, New York State's largest supportive housing provider, manages 24 transitional and permanent residences across New York City, offering safe, stable, and attractive housing to those in need. The organization also operates street homeless outreach services across Brooklyn, Queens, and parts of Manhattan under contract with the Department of Homeless Services. Since its founding in 1990, Breaking Ground has helped more than 14,000 individuals escape and avoid homelessness.

Located in the Mott Haven neighborhood of the Bronx, Breaking Ground developed the Betances Residence in 2022. Designed by COOKFOX Architects, it provides supportive and affordable apartments for seniors who have experienced or are at risk of homelessness. The building is thoughtfully designed to respond to the culturally rich context of the neighborhood, a residential area surrounded by active commercial zones, schools, parks, and religious spaces. The development includes 152 supportive housing units, along with 10,600 square feet of community space and amenities, all built to Passive House standards. The design incorporates biophilic and active design principles to enhance resident health and well-being. On-site support is provided by Breaking Ground's long-standing partner, the Center for Urban Community Services.

Betances by COOKFOX

Photo Credit: Frank Oudeman

The Agency of Design

By minimizing reliance on municipal energy supplies, the Passive House standard helps push towards regional zero-emissions goals. With a tight building envelope and engineered ventilation systems, the design ensures high indoor air quality, crucial for residents in a neighborhood grappling with high rates of asthma and respiratory illnesses due to nearby highways. Triple-glazed windows and highly insulated metal and masonry cladding minimize heat loss, maintaining resident comfort and the building's resilience against extreme weather. The building's façade also reduces noise from surrounding streets and highways, promoting wellness, especially for the aging population. Solar panels on the roof help offset energy usage. Additionally, natural, recycled, and minimally treated materials contribute to a healthy interior environment by reducing common VOCs.

Betances is designed to support physical engagement with features such as active design principles, specially designed garden spaces, and accessibility accommodations for residents with mobility challenges. The entry, vertical circulation, and amenities are strategically placed to encourage walking, while the courtyard provides space for large group activities. The building's design promotes physical and mental well-being through senior-specific programming and an on-site medical suite.

The building integrates biophilic elements, natural materials, and abundant daylighting. The entryway is focused on a framed view of a central courtyard that is designed to foster community within the building. The 120,000-square-foot development features a laundry room, a digital library, multipurpose rooms, landscaped courtyard and terrace spaces. Additionally, the building houses a 4,700-square-foot community facility engaging the Bronx youth in community programming. The landscaped gardens provide spaces for Breaking Ground residents to engage in enriching activities.

At the heart of the project is community and social inclusion. All Betances apartments are designated for formerly homeless and low-income seniors. The project benefited from a careful interpretation of zoning regulations to maximize community and supportive spaces, along with enthusiastic support from a broad group of stakeholders across state and local municipalities and funding partners. The land is co-owned by the New York City Housing Authority (NYCHA) and the New York City Department of Housing Preservation and Development (HPD), driving the project's stringent environmental goals and creating a shared sense of ownership. The development has set aside 26 units for residents of NYCHA apartments, allowing seniors to age in place and freeing up other NYCHA units across the city.

Betances by COOKFOX

Photo Credit: Frank Oudeman

Practice Story Questions

Q1. Where are opportunities for synergy between lowering embodied carbon and working toward environmental and housing justice in this practice story?

A. The key synergy lies in integrating environmental sustainability into supportive housing projects, where environmental goals directly contribute to the health and wellness of the residents. For example, using high-performance building standards like Passive House helps reduce energy consumption and lowers operational carbon while improving indoor air quality. This benefits the residents by providing cleaner, quieter, and healthier living environments. To reduce embodied carbon, the design incorporated a prestressed hollow-core plank superstructure, limited the depth of excavation, and used zinc cladding, a material with very high recycled content. The design not only addresses environmental justice but promotes housing justice by ensuring that formerly homeless individuals and low-income seniors have access to high-quality, sustainable permanent homes.

Q2.. Which funding strategies are being employed to achieve the high standards of this case study, specifically its justice and sustainability goals?

A. Breaking Ground played a pivotal role in fundraising and establishing relationships with lenders and investors who specifically supported the sustainability goals of the project. The focus was not just on the number of units or square footage but on long-term, high-performance, sustainable design and wellness. This helped secure New York state incentives for achieving the highest tiers of energy performance, The final project navigated 34 funding sources including various state and city agencies, highlighting the importance of strong partnerships and the value of integrating sustainability into supportive housing.

Q3. Where do you see the agency of design in projects like Betances Residences?

A. Design plays a crucial role in the health and well-being of residents. In Betances, features like acoustic performance, air filtration, and overall environmental quality have direct impacts. Addressing high levels of noise and respiratory illnesses through sustainability goals like the Passive House standard ensures clean, filtered air circulates through the building. The acoustic qualities created by triple-pane windows and thick exterior walls offer a quiet and calming environment, supporting the health and wellness of the aging residents in a neighborhood affected by pollution and noise. Lastly, material selection has far reaching impacts not only on the health and wellbeing of the building's users, but also the global supply chain, labor market and environment. For example, architects, clients or standards can prevent the use of materials containing red-listed chemicals or the occurrence of child- or slave-labor in the building's global supply chain, and instead focus on local, reused and circular alternatives.

Q4. How can we scale lessons learned from this case study to house underserved populations in high-quality healthy homes?

A. Scaling these lessons requires a collaborative approach involving community, government, and developers from the outset to integrate high-performance, sustainable designs in affordable and supportive housing developments and connect performance to wellness outcomes for communities served. Breaking Ground's commitment and ability to navigate complex funding sources should be commended, but policy changes could ease the path for similar projects in the future. Design strategies that improve health outcomes—like air quality, acoustics, and natural lighting—and provide access to nature should be adopted as standard practice in all types of housing to ensure underserved populations have access to dignified, healthy, and sustainable homes.

Q5. What is the role of the community and community engagement in projects like Betances?

A. Community engagement is essential to the success of projects like Betances. While this project did not face significant community pushback, it was still important to ensure the building fit seamlessly into the existing neighborhood. The Betances Residence was designed to be a "good neighbor," matching the scale and rhythm of surrounding buildings and creating welcoming spaces that connect the interior with the exterior and its context. Early and continuous community engagement ensures the project responds to the neighborhood's needs and fosters support. Other examples provide community spaces within the projects through smart zoning interpretations to further engage and link projects and their neighborhoods.

Q6. What is the role of regulation/zoning/frameworks for projects like Betances?

A. Regulations, zoning codes, and frameworks shape the feasibility and design of projects like Betances. Zoning codes, building height restrictions, and floor area ratios determine the allocation of space, including critical communal areas. Betances utilized innovative strategies, like incorporating below-grade space daylit by a sunken courtyard, to maximize the available area for shared functions. However, zoning complexities and the need to align multiple agency requirements can create challenges. Policy shifts, such as allowing a percentage of zoning floor area for amenity space as implemented in New York's new "City of Yes" regulation, are steps in the right direction but more flexibility is necessary for greater efficiency and impact. Additional policy shifts should include streamlining and expanding funding, and a holistic housing-first policy across city agencies.

Workbook:

Equitable Design and Implementation

The following questions are guides for considering embodied carbon and housing justice. Fill in initial thoughts here that can be used in developing next steps in your community.

1. How can environmental sustainability goals align with the social goals of affordable and supportive housing in your city or neighborhood context?

2. What role can material choices play in promoting both environmental sustainability and social equity in housing projects in your context?

3. How can you create more pathways for incorporating high-performance building standards in affordable housing at a city or state level?

4. What are the main challenges in balancing environmental, social, and financial goals in affordable housing projects and how could they be addressed?

5. How can other cities replicate Betances's approach to supportive housing while considering local contextual challenges?

PRACTICE STORY 3:

Advancing Housing Equity, Climate Goals, and Just Zoning Reform

National Zoning Atlas
Online Platform operated by Land Use Atlas, Inc.

https://www.zoningatlas.org/

Description:
Free, interactive tool that captures U.S. zoning information and allows visualization of the impacts of zoning policies and decisions.

Embodied Carbon (Zs):

- **Z4** Parking Requirement Optimization
- **Z7** Increasing Density Using Existing Infrastructure
- **Z8** Use Low Carbon Building Typologies

Embodying Justice (Js):

- **J5** Community Engagement and Involvement
- **J6** Transportation Equity and Access
- **J7** Housing Security, Equity, and Access

Founder & CEO:
Sara C. Bronin

The National Zoning Atlas (NZA) is a free public tool that standardizes local zoning codes in the U.S. into a national dataset that can be easily queried and compared. It helps users see where different types of housing, such as multi-family units and accessory dwelling units (ADUs), are allowed and where they are excluded. Although not all jurisdictions are yet included, the NZA clearly reveals how zoning decisions can limit housing options. It can also be used to understand how zoning codes can reinforce racial and economic segregation and injustices in the built environment.

Zoning, typically adopted by local governments in the U.S., regulates how land is used for housing, commercial districts, employment, parks, and other purposes. Municipal leaders, policymakers, and community organizations can use the NZA to reform exclusionary zoning within their jurisdictions and educate their constituents about complex zoning rules. Policymakers can use this resource to guide conversations about just and inclusive land use policies through public engagement. Community-based organizations can use this tool to identify areas in their city where zoning reform is needed to develop community-responsive programming and initiatives that advance embodied carbon, justice, and equity goals.

The NZA can be used as a resource in conversations about equity, housing access, and climate justice, especially in areas now limited by zoning to low-density single-family residential uses.[1] While the NZA is not a solution in itself, it offers a foundation for highlighting harmful zoning patterns for historically marginalized communities and a pathway to create more climate-resilient cities.

Using the National Zoning Atlas to Advance Js and Zs

Use the instructions below to consider how you can use the NZA to explore opportunities to advance Justice considerations (Js) and Land Use and Zoning policies for dramatically reducing carbon (Zs). To begin, locate your city or county in the NZA and toggle on the "Hide Other Jurisdictions" option. Use the Imagery Basemap for a clearer view of the physical context. After your initial exploration of the NZA, check the maps with your local zoning map to specifically identify potential zoning reforms or mismatches.

J5: Community Engagement and Involvement

Use the map to hold open dialogues, co-produce zoning solutions, and build community-driven strategies rooted in local knowledge. The NZA can help demystify zoning by providing an accessible, visual platform to support transparent and inclusive community engagement processes, where residents, especially those from priority communities, can understand zoning and participate meaningfully in reform efforts.

National Zoning Atlas Interface: Baltimore Jurisdiction Zoning Snapshot

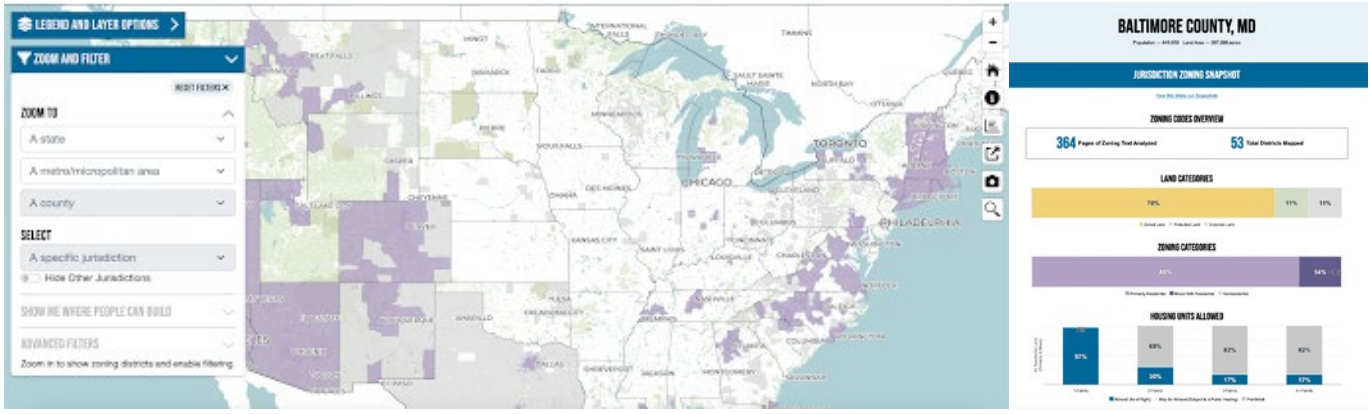


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

A wide-shot view of the National Zoning Atlas (NZA) interface shows how users can explore zoning regulations across the U.S. The map allows users to zoom in from a national or state view to specific counties and municipalities. Each jurisdiction includes detailed zoning information; users can click on the "Zoning Snapshot" button, circled in green, to view a concise overview of that area's zoning regulations.

J6: Transportation and Access

Use the Transit Stations toggle to assess proximity to transportation infrastructure and develop an informed analysis for zoning reform that repairs past harms and promotes mobility justice. Examining how restrictive zoning near transit stations may contribute to inequitable access or reinforce legacies of exclusion can help increase connectivity to public transportation in historically marginalized or rural communities. Zoning reforms that increase density near transit can improve access to jobs, schools, and services while reducing transportation costs and emissions.

National Zoning Atlas Interface: Baltimore Metropolitan Area

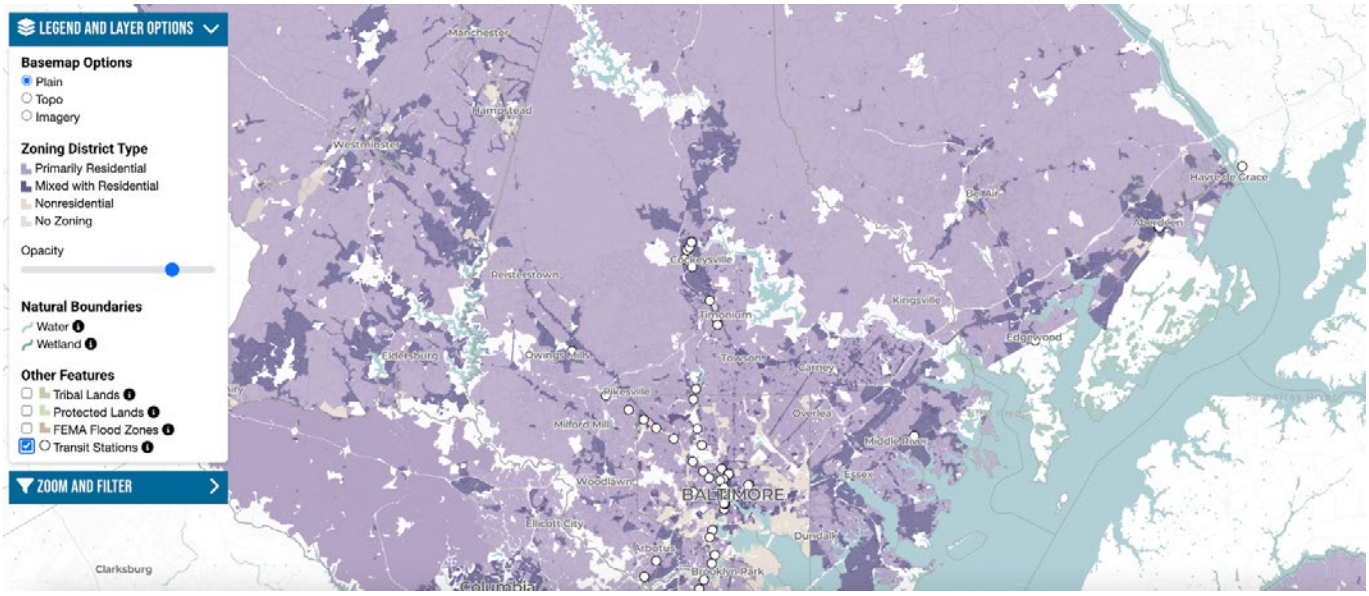


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

Transit stations are shown as small white circles outlined in black on the map, helping users identify communities with strong and weak transit access.

J7: Housing Security and Access

Use the map to compare zoning for single-family homes to areas where missing middle housing and accessory dwelling units (ADUs) are allowed. The NZA helps clarify which reforms are needed to allow more diverse housing options. The NZA does not specifically address how to preserve existing affordable housing or how to prevent displacement as zoning is reformed. Additional strategies must be considered in concert with the use of the NZA.

National Zoning Atlas Interface: Baltimore Metropolitan Area

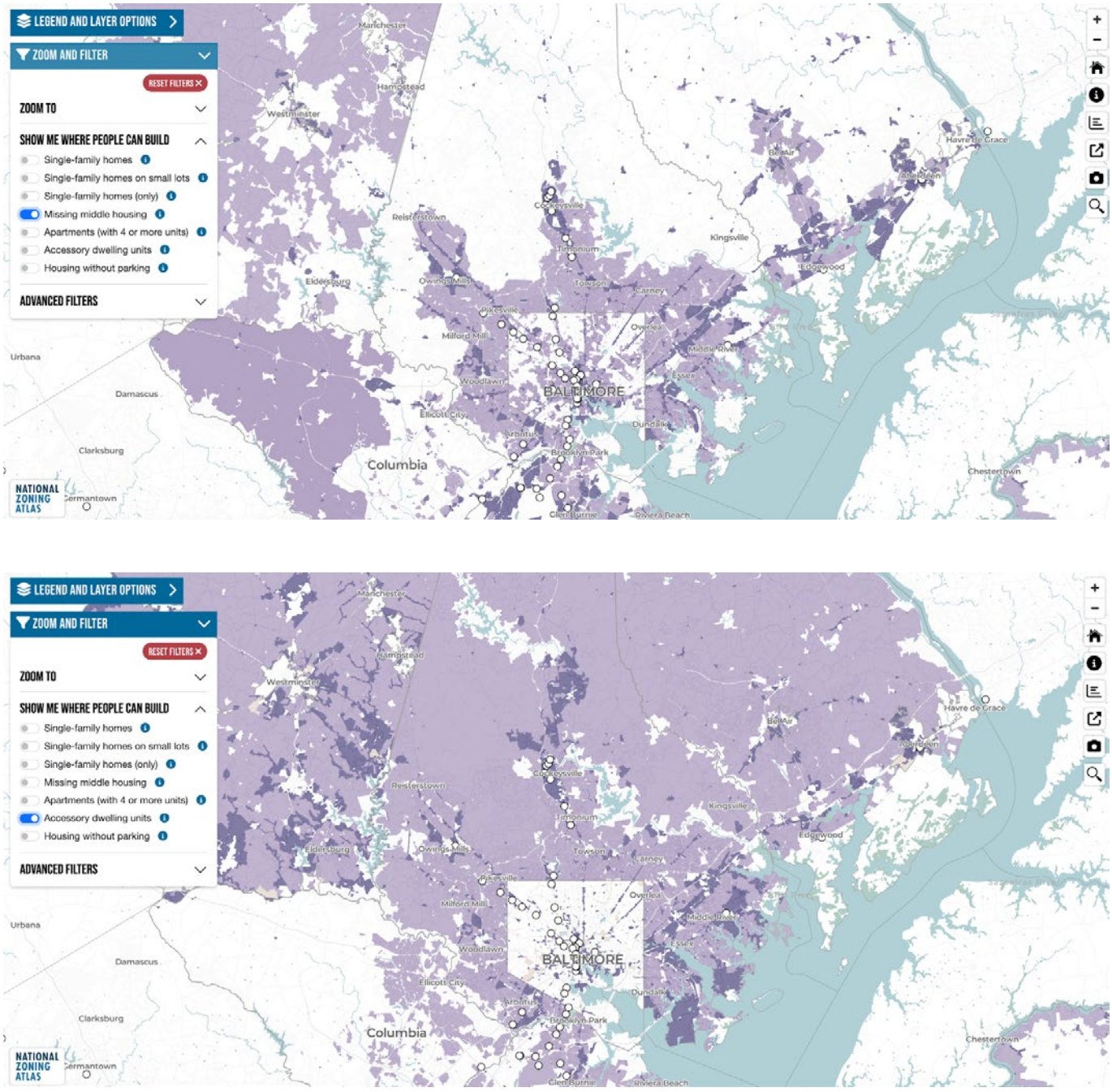


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

You can only toggle one option at a time

Advancing Embodied Carbon Goals

The NZA can also be used to advance embodied carbon through zoning regulations in the areas of parking requirements (Z4), density and infrastructure upgrading (Z7), and form-based codes (Z8).

As you explore the implementation of the Zs, consider how the Js and Zs can be used in conversation to advance more holistic zoning reforms.

National Zoning Atlas Interface: Baltimore County Regional Area

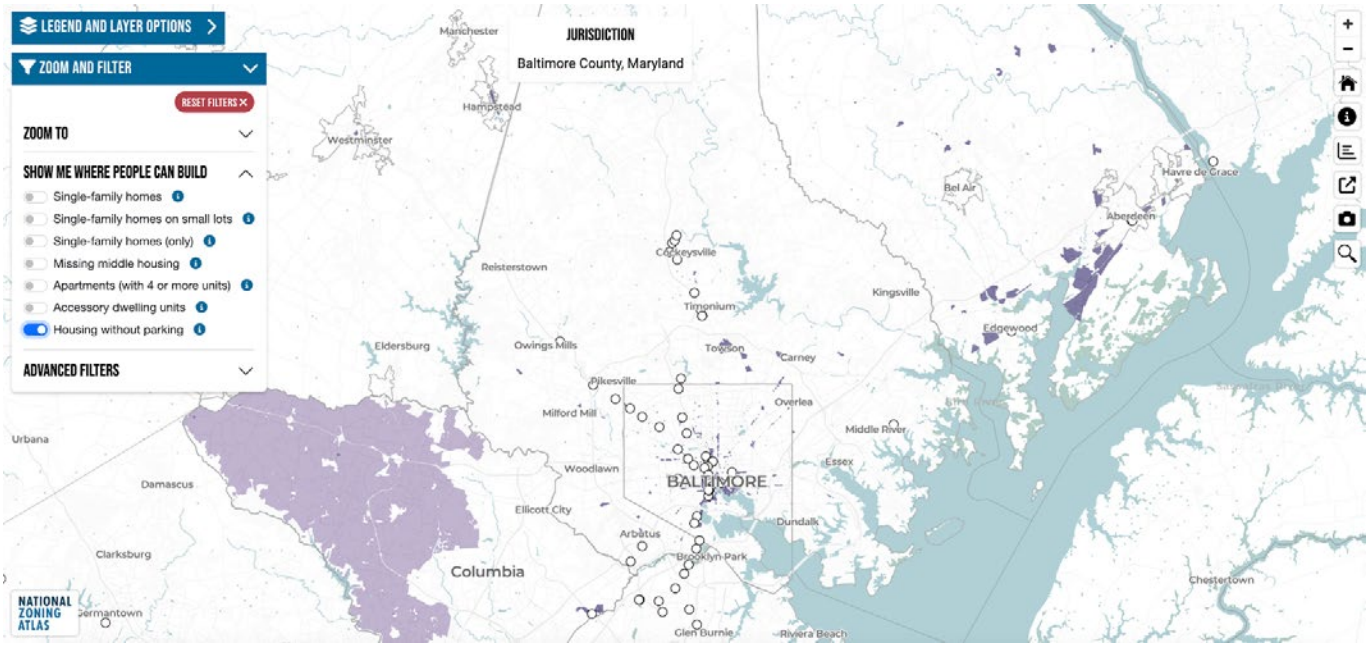


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

The "Show me where people can build housing without parking" option is toggled on, highlighting areas where housing for 1-, 2-, 3-, and 4+ family homes can be built without parking requirements.

Z4: Parking Requirement Optimization

Toggle on minimum parking requirements and look for areas where zoning mandates unnecessary off-street parking. Reforming parking minimums, especially near transit, can support affordability and embodied carbon goals. Changing these requirements can decrease construction costs, reduce car dependency, and lower embodied carbon.

National Zoning Atlas Interface: Baltimore County Regional Area

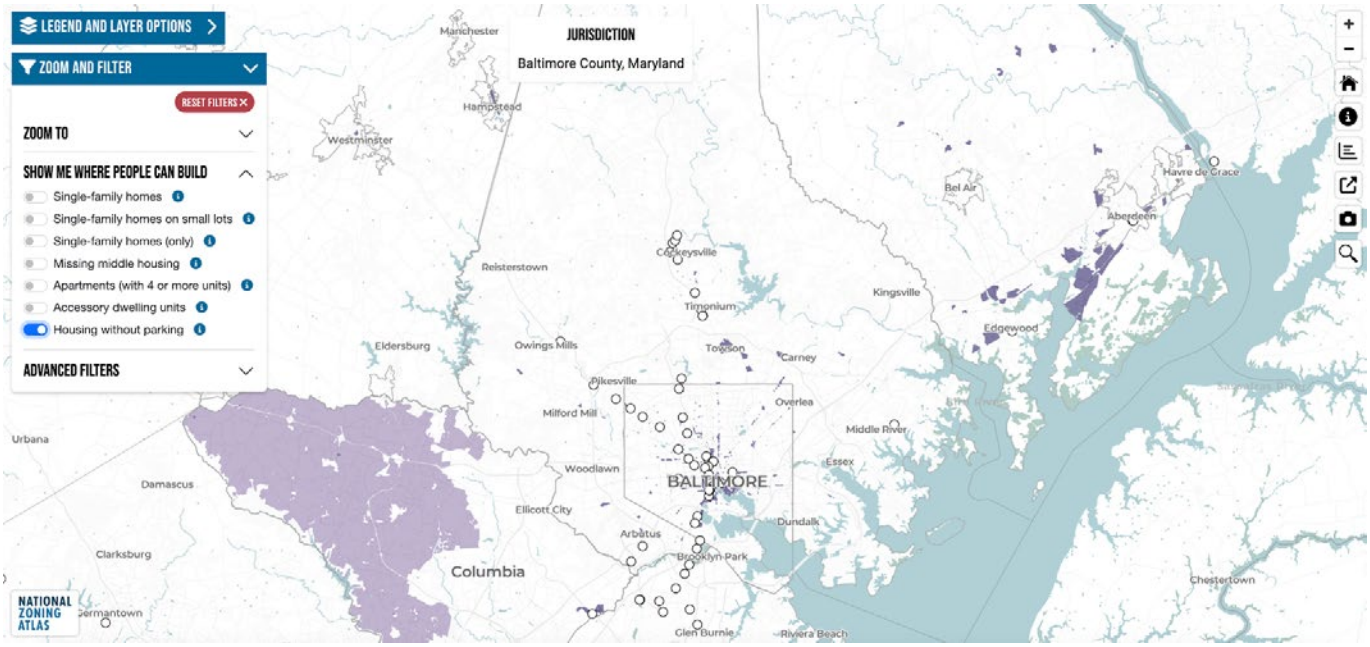


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

To find specific types of housing units allowed, use the advanced filters to select your preferred unit by clicking "yes" or "maybe (subject to a public hearing)." Then, set the minimum parking requirement to "no" to see which housing types do not require parking.

Z7: Increasing Density Using Existing Infrastructure

Identify areas where existing infrastructure and environmental constraints (such as water bodies, wetlands, protected lands, and FEMA flood zones) limit expansion, but zoning still allows only low-density housing. In these areas, targeting zoning reform to permit multi-family or missing middle housing can maximize land already in use, reduce emissions from sprawl, and encourage infill development. This can make efficient use of existing public infrastructure and help minimize environmental impacts by avoiding further outward expansion into undeveloped or vulnerable areas.

National Zoning Atlas Interface: Baltimore Metropolitan Area

Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

Switch to the imagery basemap using the legend and layer options to closely observe protected lands, water bodies, and FEMA flood zones alongside transit stations, helping identify areas with public infrastructure and natural resources.

National Zoning Atlas Interface: Baltimore County Regional Area

Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

After switching basemaps, toggle on housing types that increase density, such as 4+ family units. To see which multi-family housing requires nearby water or sewage connections, click the "water/sewage line required" button.

Z8: Use Low-Carbon Building Typologies in Zoning

Use the Advanced filter on 3- and 4-family homes to explore areas where zoning encourages (or could be changed to encourage) mid-rise or higher-density development using low-carbon materials. Form-based codes in zoning ordinances, such as height caps and minimum lot sizes, can be adjusted to encourage carbon-optimal building typologies that increase housing density, reduce urban sprawl, and lower the embodied carbon of construction.

National Zoning Atlas Interface: Baltimore County Regional Area

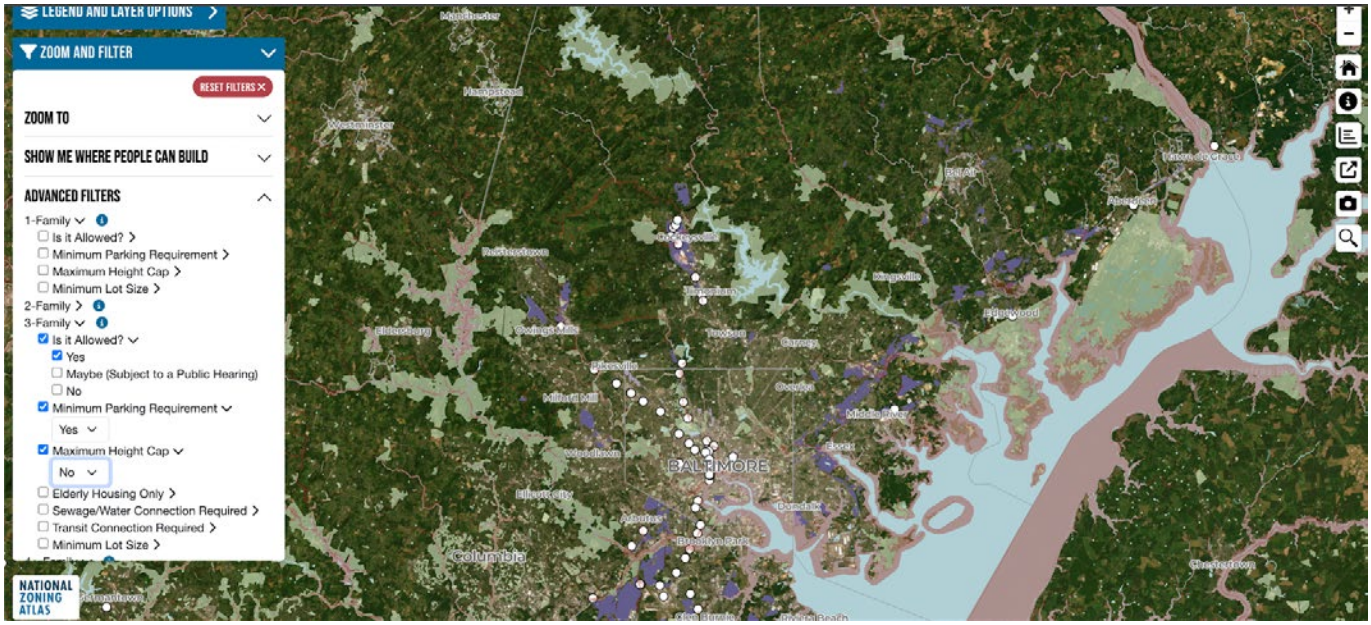


Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

The map shows where 3-family housing is allowed, including areas with minimum parking requirements and maximum height caps. Identifying locations with parking requirements but no height limits can highlight opportunities for zoning reform.

National Zoning Atlas Interface: Baltimore County Regional Area

Photo Credit: Screenshot taken by Alexandra Shoneyin

Navigation Tip

Minimum lot size is another way to identify where zoning reform can reduce embodied carbon. Lower minimum lot sizes, generally 5,000 square feet or less, increase density and encourage more multi-family and missing middle housing. This image shows high minimum lot sizes ranging from 5,000 to 20,000 square feet near transit lines and concentrated in the city, highlighting areas where reform could improve housing access near transit.

Pay close attention to areas where only single-family housing is allowed, especially if the minimum lot size is over 5,000 square feet or where 3-family and 4+-family homes are not permitted. These regulations often create barriers to increasing density and housing affordability

Practice Story Questions

Q1. What if the National Zoning Atlas hasn't mapped my community?

A. The NZA relies on publicly available zoning texts and maps from municipalities to build and update its platform. If your community isn't currently represented, it may be because the necessary data has not yet been made available or mapped.

If you're interested in getting your community included, reach out directly to the NZA team to ask whether there are plans to map your area in the near future.[2] In the meantime, the NZA's framework can be a helpful tool for community conversations. You can use it to engage with local residents, community-based organizations, elected officials, and policymakers around land use and zoning. You can help guide local advocacy and planning by reviewing what is and isn't permitted to be built, where zoning districts are located, and what information is available (or missing) in your municipality. If you want your community added to the NZA map more quickly, they offer an expedited mapping service for a fee.[3]

Q2. What additional tools can I use alongside the National Zoning Atlas to dramatically advance justice in my city?

A. To advance justice in your city and inform zoning reform, you can use the Decolonizing Wealth Project's *Reparation Map: Mapping the U.S. Reparations Movement*.[4] This interactive map highlights efforts across the U.S. to redress historic harms against marginalized communities. The map allows users to identify movement organizations and initiatives led by national institutions and groups and to see what issues of justice they are advancing. Used in conjunction with the National Zoning Atlas, this tool can help individuals and groups develop zoning reform recommendations rooted in broader national movements for distributive and restorative justice. It also provides an opportunity to connect with local or national groups that align with your goals.

Q3. How can zoning advance justice or dramatically reduce embodied carbon?

A. While zoning reform can help reverse exclusionary practices, address inequities in historically marginalized communities, and impose restrictions on development that lower carbon emissions, it cannot, by itself, reduce embodied carbon or create justice. Zoning must be used strategically in conjunction with equitable policies, inclusive decision-making processes, and robust financial models to create meaningful and lasting transformations in communities.

Q4. What other mapping platforms can I use alongside the National Zoning Atlas to support conversations around zoning reform, justice, and reducing embodied carbon in my community?

A. If you're interested in creating your visualizations to supplement the NZA, you can use free tools like Google's "Create a Map" feature.[5] While it isn't a replacement for the NZA, it allows you to add layers, draw shapes or lines, and map zoning districts or transportation corridors in your community. Additionally, you can use this Maps feature to make notes about restrictions on housing and accessory dwelling units, parking mandates, and other land categories within each layer. This approach can help to engage a wider range of stakeholders in visualizing zoning ordinances and understanding the reform needed in their community.

PRACTICE STORY 4:

Community Gardens: Cultivating Justice and Low-Carbon Futures

Seattle, Washington

Description:
System of community gardens and urban food forests comprising nearly 35 acres (Beacon Hill Food Forest: 3.5 acres active, 7 acres allocated)

Began:
P-Patches since 1973, Beacon Hill Food Forest since 2011

Carbon Neutrality (Zs):
Z7 Increasing Density Using Existing Infrastructure

Embodying Justice (Js):
J1 Community Impacts

Involved Parties:
University of Washington, Outdoors Preschool, Seattle Public Utilities, Department of Neighborhoods, Tilth Alliance, City of Seattle, Department of Neighborhoods, Seattle Indian Health Board, Asian Counseling and Referral Services, Percussion Farms

Vacant land transition toward a green space

Photo Credit: Beacon Hill Food Forest

Seattle's city-wide P-Patch system is an example of transitioning land that would otherwise be vacant or in private ownership into a collectively managed network of green spaces that can contribute to the health of human and nonhuman systems in a region. P-Patch community gardens, nestled within Seattle's remnant urban forests, present a compelling site to explore embodied carbon and justice in land use. Community gardens sequester carbon through their soil, canopy, and biodiversity, as well as through managing urban change by sharing land and centering public benefits for residents who live around them.

As Seattle builds more density within its central neighborhoods, the potential of community gardens extends beyond the realization and maintenance of net-zero land use to provide an important amenity, or even a kind of essential social and ecological infrastructure. Community gardens provide free and meaningful access to growing space, allowing community members to feed themselves, build skills, and tend land together. These spaces offer opportunities for shared decision-making and provide a

chance for residents across generations, cultures, and backgrounds to mingle and share knowledge and produce memories.

Community Garden Programs

The P-Patch system, through the allocation of public land and long-term leases, implements the City of Seattle's sustainability goals. The City of Seattle Department of Neighborhoods oversees 91 P-Patches, which are community gardens[1] that encourage neighborhood residents to participate in gardening around the region through allocated plots.[2] The P-Patch program is a city-wide organized open garden system; all 91 P-Patches are community-managed and leased to those who would like to access garden space, which otherwise would be inaccessible in a metropolitan area.[3] This includes over 3,000 individual plots, which serve around 3,500 families.[4]

Although community gardens are common in other areas of the United States, the P-Patch program was launched in 1973 at the University of Washington by a student and activist, Darlyn Del Boca, who asked neighbors, the Picardos (hence, P-Patch), if she could use a part of their corner lot for a community garden.[5] This local advocacy for gardening emerged during the national "Back-to-the-Earth" movement, inspiring students, the community, and progressive council members to reconsider their approach to the earth and vacant land.

Cultivating a community garden

Photo Credit: Beacon Hill Food Forest

Although the Picardos were given many opportunities to sell their land for housing or mixed-use, they leased and then sold their 2.5-acre property to the city, officially beginning the Seattle P-Patch program in the Wedgewood neighborhood. Along with many other community movements occurring within Seattle at the time, the P-Patch was one of the many "creative counterculture experiments liberating the land from the market, building smaller decentralized community context, and educating the public about organic produce and ideas of ecology."[6] By 1993, Seattle's P-Patch program was the most extensive community garden program in the nation.[7] The P-Patch system also ties gardens directly to the Seattle Housing Authority, supporting those that would otherwise not have access to food (although the wait time can go beyond a single planting season).

The Beacon Hill Food Forest (BFF)

The Beacon Hill Food Forest (BFF) is a comprehensive and dynamic component of the P-Patch system in Seattle. BFF, fondly known as "the Forest," is run by a non-profit, Food Forest Collective. BFF partners with Seattle's P-Patch Community Garden Program and extends beyond the P-Patch system as an ever-expanding entity, comprising a volunteer program and a nonprofit organization that encourages food growth in the community. BFF also includes

a food bank gardening plot, a BIPOC garden, pollinator plants, an open harvest site (for all), two staff members and 50 year-around volunteers (alongside over 1,000 seasonal volunteers), storm water filtration, gravity compost system, and education opportunities. Open harvest allows anyone who is not part of the P-Patch program to harvest anything needed from the Forest. At the same time, BFF resists carbon-intensive forms of land use, preserving mature vegetation, sequestering carbon in soil and plants, and building community infrastructure through reuse and human labor rather than extraction. Recognizing food forests as an essential public infrastructure means valuing contributions of sequestration, climate adaptation, and environmental justice in planning and budgeting processes.

Community engagement through clay pot production

Photo Credit: Beacon Hill Food Forest

The Food Forest is at the heart of Beacon Hill, cared for all year round. By holding work parties, classes, and workshops led by local educators or community members who are specialists, BFF creates a space to learn from the land and consider new urban ways of expanding environmental justice. The events can be culturally specific allowing people to form connections within safe spaces. Beacon Hill Food Forest provides a respite for the community without the pressure of needing to volunteer, enabling people to spend time in a space that is an extension of nature in a city.

The Beacon Hill Food Forest embodies justice by transforming public land into a site of collective care, ecological learning, and cultural recognition. It redistributes access to land and food in a neighborhood shaped by histories of racial and economic exclusion, offering space for both food and relationships to flourish. Justice here is embedded in who the land is for, who tends it, and how decisions are made, from food bank plots to volunteer-led workshops and open harvest zones. Through everyday stewardship, the Food Forest weaves distributive, procedural, and cultural knowledge into the landscape, creating intergenerational and local knowledge alongside community resilience. Beacon Hill Food Forest's mission is to create food accessibility, education, and community engagement as they explore ways that open space can be pathways for liberation and care. The distinct difference between BFF and the P-Patch system is that most of the Forest is open harvest, allowing community members to freely harvest throughout the year at no cost and without needing to volunteer. This showcases an equitable and justice-centered advancement that goes

beyond the P-Patch. As the community relations director notes, "The forest is open from dawn to dusk year round and there are no gates or fences, admission fees, required registration or other access barriers."

Sharing the fruit of the community garden

Photo Credit: Beacon Hill Food Forest

The Massachusetts Avenue Project in Buffalo, New York, considers urban land for gardening and does so by offering employment to teenagers not only as a way to support transition from high school to college and beyond, but to help reduce urban harms such as the school-to-prison pipeline.[9] Education goes beyond teenagers by engaging in advocacy, faith groups, community organizations, colleges, and national conferences. By widening the net of what is possible and bringing in other members, the Massachusetts Avenue Project makes labor and support more resilient and sustainable through the challenges of urban change.

Challenges

These models are not without tensions, particularly in regard to city-developed and community-run urban gardens. As an organization, the Forest is heavily reliant on volunteers, which risks reproducing inequities in labor, capacity, and recognition. The unpaid and often invisible work that sustains the site is itself a form of embodied energy. Although, this effort is not without the knowledge that it supports open harvest in order to create free food for those who need it year round. This particular challenge can be recognized as a larger common goal; to provide food to the community. In addition, most of the P-Patches are at least 10 years old, with only one addition in the last three years, the Good Shepherd P-Patch in the Wallingford/Meridian neighborhood where the median income ranges from $115,000-195,000 per year. This begs the question; are P-Patches accessible to priority communities and, if so, what is the wait time for them? Generally, P-Patches in higher income neighborhoods have shorter wait times (0-6 months), whereas those in lower income neighborhoods have wait times that typically range up to one year or more. Is the density of P-Patches being equitably dispersed to neighborhoods that need access to food, and are there affordable and reliable transportation networks in the event that a family or individual may need to travel in order to tend to their garden and have access to a plot? These are questions that must be considered, even if the framework overall is resisting inequality. A program that started in the 1970s does need to be periodically readdressed, especially in an urban environment experiencing rapid change. By foregrounding these contradictions, this project invites a broader

reckoning: how might cities account for the justice-centered social and ecological value of community-managed land, and what would it mean to resource such projects as part of a just and climate-conscious urban future?

There is always something growing in the Food Forest, and those who need food have the ability to be a part of the Forest. Time spent at the Food Forest allows the community to see what is being brought to life for others. "The biggest highlight of working here," according to the former Site and Programs Manager, "is with kids, they come not that interested and by the time they leave, they are excited and curious when it comes to spending time on the site. I don't think there is much gratitude in understanding where our food comes from. For children to see it as a miracle, and their perspective on food has shifted, it is really amazing." The P-Patch and adjacent urban forest operate as a site where justice is enacted through collective stewardship, and where embodied carbon is not merely a technical metric but a living archive of environmental labor, community resilience, and low-carbon urban futures.

Fresh berries in the Beacon Hill Food Forest

Photo Credit: Beacon Hill Food Forest

Practice Story Questions

Q1.. How can community gardens directly support dramatically reducing embodied carbon, climate action, carbon neutrality?

A. Community gardens and food forests help the environment in many ways. They store carbon in the soil, trees, and plants, while reducing emissions from construction, demolition, and food transportation. By using reclaimed materials for structures and plots, while also preserving existing landscapes, they lower embodied carbon. These spaces also help to cool urban areas, absorb stormwater, and create opportunities for hands-on climate learning. In addition to this, greenspace and urban forests filter rainwater that collects pollutants that would otherwise end in water streams, protecting wildlife. As community-driven spaces, they offer practical, local solutions to global climate challenges.

Q2. Can cities establish a baseline set of climate and carbon requirements for new land development to require urban agricultural space? How can new development be required to select a minimum number of climate-related benefits from a broader menu?

A. Yes, through zoning or permitting tools, cities can require and/or incentivize new projects to include food-growing space and trees, green roofs, or compost systems as part of a menu of climate actions, ensuring development contributes to justice and sustainability.

Q3. How can food forests and community gardens be structured to address historical environmental injustices and ensure that low-carbon development benefits are distributed equitably?

A. By returning land to community care, prioritizing BIPOC- or priority community-led stewardship, and embedding access in historically excluded areas, food forests repair past harms and ensure climate investments benefit those most impacted.

Q4. How do food forests support justice in land use and address concerns about green spaces as carbon offsets?

A. Food forests help shift land away from extractive or speculative uses and toward community stewardship. They embody justice by creating spaces for shared care, cultural connection, and ecological renewal—especially in neighborhoods that have experienced disinvestment. While not all green spaces should be treated as carbon offsets, forests go further: they store carbon through soil and biomass, cut emissions from food transport, cool the city, and absorb stormwater, preventing flooding. Critically, they also redistribute land to communities, addressing historical harms, and embed care into the urban fabric. Rather than being a trade-off they represent a deep shift, from private control to shared public benefit.

Workbook:

Equitable Design and Implementation

The following questions are guides for considering the applicability of this practice story in your local context: Fill in initial thoughts here that can be used in developing next steps in your community.

1. Are there local opportunities to reimagine vacant land in similar ways in your community? Are there any empty or unused spaces in your city that could be used to grow food or create community gardens?

2. Are there municipal barriers, such as limitations to urban agriculture in the local zoning ordinance, that prevent the realization of this type of community infrastructure?

3. What are the challenges to food access and food security in your city and region?

4. Are there areas of the city that should be prioritized to equitably distribute efforts to benefit priority communities?

5. What valued, needed, and culturally appropriate foods can be prioritized?

6. What policies (such as zoning changes, right-of-entry programs, or land disposition processes) could help communities gain access to and retain land they already care for?

7. What sources of funding for urban agriculture, justice, and vacant lands from local, state, federal or nonprofit sources could be leveraged to create new community-based efforts such as the Beacon Food Forest?

8. What steps could your city take to reimagine connections between agriculture, food systems, and carbon neutrality?

9. What would a successful food project look like for you? How would it improve life in your community?

PRACTICE STORY 5:

Community Benefits Ordinance: CBOs and CBAs as Models to Promote Equitable Development and Lower Embodied Carbon

Detroit, Michigan

Description:
Community Benefits Ordinance approved by voters in 2016 and amended by City Council in 2021.

Carbon Neutrality (Zs):

- **Z7** Increasing Density Using Existing Infrastructure
- **Z8** Use Low Carbon Building Typologies

Embodying Justice (Js):

- **J1** Community Impacts
- **J2** Economic Impacts
- **J3** Labor and Workforce
- **J5** Community Engagement and Involvement

Involved Parties:
Planning and Development Department, City Council, Economic Growth Corporation, Department of Neighborhoods, various neighborhood and community organizations and advocates

2024 CBO meeting at Water Square Hotel

Photo Credit: The City of Detroit

Community benefits agreements (CBA) are legally binding agreements—often between developers and community stakeholders—that aim to ensure local communities, especially those that have been historically marginalized and under-resourced, benefit from new development projects. These agreements are typically the result of robust community engagement processes and can take many forms, including host community agreements and community workforce agreements.

The obligations outlined in CBAs can vary widely and may include provisions for local jobs and workforce training, affordable housing, environmental mitigations, and the inclusion of green space, recreational amenities, or public art. While promoting justice and equity for impacted neighborhoods, CBAs can also serve as a valuable tool for advancing embodied carbon reduction and broader climate goals.

Community Benefits Ordinances (CBO) take this a step further by formalizing the process into law. They require developers to formally and proactively engage with impacted communities to address potential negative impacts of the projects and negotiate benefits packages.

In 2016, Detroit became the first major U.S. city to adopt a citywide CBO, setting a precedent for a now-growing movement.[1]The ordinance marked a paradigm shift in how development is approached, placing community voices at the center and starting to level the playing field in planning and development processes. Detroit's experience offers valuable lessons for other cities seeking to embed equity into land use decisions through meaningful engagement and shared benefits.

The process leading to Detroit's CBO began in 2014, when community leaders and attorneys formed the Equitable Detroit Coalition.[2] The coalition organized in response to developers who were receiving public subsidies in the name of economic growth while public services were underfunded.[3] The coalition launched a citywide campaign for a CBO that would embed equity and transparency into development processes.[4]

Ultimately, two competing proposals were brought to the ballot in November 2016. Proposal A, developed by the Equitable Detroit Coalition, would have required projects valued at $15 million or more and receiving $300,000 or more in tax incentives to enter into a legally binding CBA with a representative group of residents, businesses, and nonprofits.[5] Proposal B, a less stringent version of the CBO supported by the mayor and business community, won the vote. The approved version–amended by City Council in 2021–requires developers to engage with the community and negotiate a benefits package for **any project valued at $75 million or more that receives at least $1 million in property tax abatements or city-owned land valued at least $1 million.**[6]

The CBO process is initiated by Detroit's Planning & Development Department (PDD), which reviews the project scope, defines the impact area, and notifies residents.[7] In the first two meetings, the Neighborhood Advisory Council (NAC) is established.[8] NAC members must be residents of the impact area and are nominated by fellow residents. From this pool, nine members are selected as follows:

- Two elected by residents of the impact area,
- Two selected by the at-large council members,
- Four selected by the PDD,
- One selected by the local district council member whose district contains the largest portion of the project.[9]

Over 2-3 months, the City organizes at least 5-6 public meetings with the developer, Neighborhood Advisory Council, and the broader community.[10] These meetings are designed to introduce the project, identify potential impacts, and negotiate the benefits that mitigate potential negative impacts.[11] The Planning and Development Department serves as a neutral facilitator, providing the Advisory Council with resources, logistical support, and best practices, while allowing the Advisory Council to independently determine their requests.

District of Detroit CBO meeting

Photo Credit: The City of Detroit

Once a final benefits package is negotiated, the Neighborhood Advisory Council provides a letter, signed by all NAC members in support, to be submitted to the City Council. The package must be approved by the City Council, at which point it becomes a Community Benefits Provision.[12] Unlike traditional CBAs, which are typically negotiated between developers and community organizations, Detroit's process legally formalizes the agreement between the developer and the city.

Following adoption, the Planning and Development Department holds annual public update meetings with the NAC and developer for at least the first two years of the project.[13] As part of the City of Detroit's Community Benefits Enforcement Committee, the Civil Rights, Inclusion, and Opportunity Department (CRIO) handles monitoring and enforcement by tracking progress and publishing reports. The developer has the ability to cure any provision of a community benefits agreement deemed to be out of compliance by the Enforcement Committee. If a developer is not complying, the CRIO will flag them as "off track," notify them, and draft a plan for the developer to bring non-compliant provisions of the agreement back "on-track". If the developer remains out of compliance, the NAC can request the Detroit City Council to hold a hearing on the matter. Following such a hearing, and continued developer non-compliance, the City Council may impose penalties such as the claw-back of city tax incentives or land for the development project.

Since implementation, Detroit's CBO has secured a wide range of tangible benefits, including affordable housing, education, job training, parks improvements (such as basketball courts), youth programming, scholarships, new green space, and community resource centers.[14] It has also given community members a seat at the table they didn't have before.

District of Detroit CBO meeting

Photo Credit: The City of Detroit

One example is Ford Motor Company's redevelopment of the historic Michigan Central Station. The station anchors a 30-acre innovation center with office space, a mobility hub, retail, outdoor plazas, and commercial space.[15] The project lowers embodied carbon impacts by reusing the existing structure and prioritizes sustainability through sustainable restoration, public green space, green infrastructure, electrification, and clean transportation technologies.[16] The project followed the CBO process, holding eight meetings with the NAC in 2018 before signing a CBA.[17] Benefits included:

- $2.5 million to the Affordable Housing Leveraging Fund to preserve or create 200 affordable housing units;
- $2.5 million to the Strategic Neighborhood Core City Fund for parks, streetscapes, mobility upgrades, home repair, emergency assistance, and business support;
- $5 million for workforce training and education plus a local hiring hall;
- Sustainable building design standards;

- Additional support for local businesses, improved mobility and neighborhood connectivity, and continued community engagement.[18]

Detroit's CBO serves as a model for cities seeking to advance equity in development and land use decisions, demonstrating how inclusive practices can lead to more equitable outcomes for communities. Additionally, by prioritizing sustainability and climate within this framework, it can provide an effective avenue for lowering embodied and operational carbon.

Michigan Central Station restoration in Corktown

Photo Credit: Maia C, CC BY-NC-ND 2.0

A Comparative Look: Cleveland's Community Benefits Ordinance

Adoption: Passed by City Council in June 2023

Baseline: CBA includes meeting the Minority-Owned Enterprises (MBE), Female-Owned Enterprises (FBE), Cleveland Small Businesses (CSB), and local workforce target the City has required for years.

The City has designated two tiers of CBAs depending on the scope of the project:

Standard CBA: Requires a core set of mandatory community benefits. Applies to projects receiving **$250,000 or more in City assistance** and **under $20 million in cost** (including residential tax abatements for projects under $75 million in total cost).[19]

Expanded CBA: Requires the same core set of mandatory community benefits from the Standard CBA and additional community benefits to be considered by legislative approval. The ordinance provides suggested categories and considerations for additional community benefits and associated requirements. Applies to projects receiving **$250,000 or more in City assistance** and **over $20 million in cost** (including residential tax abatement projects over $75 million in total cost).[20]

Developers are required to meet with community members, solicit feedback, and identify additional benefits residents would like in the agreement. Once the CBA and associated incentive package are prepared, City Representatives present it to the Cleveland Citywide Development Corporation (CCDC), an advisory nonprofit board that helps the city with real estate deals, and then to the Cleveland City Council for legislative approval.[21]

Practice Story Questions

Q1. How can community benefits agreements (CBAs) and community benefits ordinances (CBOs) directly support dramatically reducing embodied carbon?

A.. CBAs and CBOs can require developers to use low or zero-carbon building materials and form. This can include incorporating existing buildings and building materials and substituting deconstruction for demolition (see *Embodying Justice in the Built Environment: Circularity in Practice*). CBAs and CBOs can also encourage changes to building typologies and parking requirements that reduce embodied carbon. See discussion of Zs and Js in this Guide on page 49.

To implement these strategies effectively, community leaders must understand these approaches and engage architects and planners who can help integrate low-carbon materials and forms into project designs.

Q2.. How can community benefits agreements and ordinances support broader climate action?

A.. CBAs and CBOs can advance broader climate action by including requirements for both climate mitigation and adaptation. These may include green building or energy standards, deep energy retrofits, clean energy implementation, and neighborhood-scale green infrastructure.

They can also promote design strategies that protect priority communities from climate-related risks while enhancing long-term sustainability at the neighborhood level.

Q3. How could your city establish a baseline set of climate and carbon requirements for all projects, in addition to the negotiated benefits? Can developers be required to select a minimum number of climate-related benefits from a broader menu?

A. First, establishing a CBO and a baseline set of climate and carbon requirements for all projects will depend on the legal authority of the local government. In the U.S., localities must review state enabling legislation.

Assuming there is enabling legislation, the next step is to consider climate goals. One model to consider is Cleveland's CBO, which mandates that all developers meet their workforce and contracting standards and a core set of mandatory community benefits. A similar structure could be applied to climate goals, requiring all projects meet a core set of carbon and climate-related standards. Cities could also implement a flexible "menu" approach, where developers are required to select a minimum number of climate-related benefits from a broader list, allowing for flexibility while ensuring alignment with larger climate goals. Cities could align such requirements with existing or emerging climate action plans or sustainability priorities.

Q4. How can CBOs or CBAs be structured to address historical environmental injustices and ensure that low-carbon development benefits are distributed equitably?

A. CBOs and CBAs can be structured to directly address historical environmental injustices by requiring developments to deliver tangible climate, low-carbon, and health benefits, such as reduced air and water pollution, green space, energy cost savings, and green infrastructure, specifically to communities that have borne the brunt of industrial pollution, redlining, and disinvestment. CBOs and CBOs can also prioritize projects that remediate past harms and include enforceable commitments to local hiring for green jobs, affordable access to clean energy, and climate resilient infrastructure.

To ensure equitable distribution of benefits, CBOs and CBAs should include clear equity metrics, accountability mechanisms, and regular monitoring. This ensures that carbon reduction efforts not only cut emissions but also reverse environmental harm and invest in the communities historically most impacted.

Workbook:

Equitable Design and Implementation

The following questions are guides for considering a Community Benefits Ordinance in your local context:. Fill in initial thoughts here that can be used in developing next steps in your community.

1. Can a CBO be implemented in your city? Who holds the enabling authority, and how can you build support for adoption?

2. If not able to be legally required, how can your city encourage or incentivize the use of CBAs?

3. What staffing and resources are needed within a city to manage and sustain an effective CBO process?

4. What types or monetary sizes of development should trigger a CBO/CBA process?

5. Should developments in specific locations or with significant carbon impacts be prioritized for CBO/CBA requirements?

6. How can a CBO ensure broad and inclusive community representation?

7. What mechanisms or supports (e.g. funding, technical or legal assistance) can ensure communities have the capacity to negotiate effectively and reduce barriers to participation?

8. How can cities effectively track, monitor, and enforce CBAs?

PRACTICE STORY 6

Rondo CLT: A Reparative Model for Just Neighborhoods and Community Wholeness

St. Paul, Minnesota

Carbon Neutrality (Zs):

Z7 Increasing Density Using Existing Infrastructure

Embodying Justice (Js):

J1 Community Impacts
J2 Economic Impacts
J3 Labor and Workforce
J4 Historical Context
J5 Community Engagement and Involvement
J7 Housing Security, Equity, and Access

Involved Parties:
Community Councils, City and County Governments, Federal Government Agencies, Philanthropic Organizations, Community Members

A Community Land Trust (CLT) is a nonprofit, community-based organization designed to ensure long-term housing affordability and community stewardship of land. By acquiring and holding land in perpetuity for the benefit of the community, it allows residents to own or lease the home or building on that land, thereby removing the cost of land from the housing equation. This method significantly reduces purchase prices and keeps homes permanently affordable.

Rondo Community Land Trust Origin Story

In 1956, the construction of Interstate 94 devastated the Rondo neighborhood, a thriving black community in St. Paul, Minnesota. More than 700 homes and 300 businesses were displaced or destroyed, along with social networks and cultural inheritance rooted in the landscapes of the neighborhood. For the remaining surrounding areas, government policies and banking practices harmed the growth of the communities and forcibly removed residents from the area. By the late 1980s, the community faced urban renewal speculation that would further displace its residents. A task force initiated by community councils organized to identify housing affordability strategies, and from these efforts, the council approved the creation of the Rondo Community Land Trust (RCLT), which incorporated in 1993.

The RCLT strives to repair historical harms by facilitating:

- Land Ownership for Collective Benefit: Holding land in trust for community use and ensuring developments benefit existing residents.

- Affordable Housing Development: Using grants and shared equity models to close the affordability gap and promote long-term stability.
- Business Development and Incubation: Through initiatives like the Rondo Exchange, RCLT revitalizes historically neglected corridors with business hubs, supporting small businesses and entrepreneurship. Leveraging the land trust model, RCLT dismantles a major barrier many small businesses face by providing affordable commercial space- leasing it at just $7/square foot.

By 2002, RCLT expanded to serve the City of St. Paul and later, all of Ramsey County. Seeing the changing landscape of the city, RCLT became the first commercial land trust in Minnesota to combat the impact of gentrification on local, small businesses along the Selby Avenue Corridor in 2022.

New development along Selby Avenue

Photo Credit: Rondo CLT

A Reparative Economic Development Framework

RCLT's vision is that they "can produce everything our communities need and desire without destroying the well-being of others." As such, they approach cooperative ownership through a reparative lens. Acknowledging histories of community development that created wealth for a few at the expense of Black, Indigenous, and people of color, Rondo CLT works to uproot these old systems to create something radically different: using a reparative economic development framework.

Rondo CLT Homeowner

Photo Credit: Rondo CLT

This framework focuses on redressing past harm by aiming to restore the solidarity economy and the circle of care that existed before the interstate while building "community wealth and neighborhood stability through the development and stewardship of permanently affordable homeownership opportunities, rental housing, commercial space, and other community assets" for the present and the future. Deeply informed by the origins of the community land trust as a radical movement of the 1960s, this framework operates based on the following principles:

1. Historic Context and Reparative Intent

The framework acknowledges long histories of injustice and involves a deep understanding of these injustices and the systemic barriers that have made it difficult for people to remain in place. It centers community healing as a guiding principle—aiming to restore what was lost and create pathways for displaced families to return and remain.

2. Place-Based Development

This model emphasizes local control and contextual understanding. It involves studying the specific conditions that led to displacement, identifying who was affected, and designing strategies to bring people back. It also focuses on creating vibrant, inclusive neighborhoods through land use, policy, and cultural revitalization.

3. Community Control

Their approach involves a different view of property. Disinvesting from the for-profit, speculative market into shared equity, community ownership, and mutual control, this is a way of care that considers land not as a commodity but as a resource to be stewarded as a community.

4. Community Wholeness

Their approach involves divesting from market understanding of value by assessing and ascribing value to intangible contributions. This also requires responsiveness and adaptability to the communities' needs holistically to ensure economic, environmental, and social justice.

This place-based framework is designed to foster economic mobility without concentrating poverty. It aims to create vibrant, whole communities through strategic land use policy. By holding land in trust, the community can benefit directly from its development.

Rondo CLT Operations

Acknowledging the significance of property ownership in wealth building and exercising power in the U.S., and the historical spatial injustices that create uneven access to and distribution of property ownership, Rondo CLT works to offset these injustices through programming, projects, and management strategies that seek to build wealth and provide access to historically economically marginalized communities to housing and commercial space.

This work is achieved primarily through the development of affordable housing and the re-establishment of a culturally significant main street, Selby Avenue, envisioned as an African American arts and cultural corridor. The shared equity model allows residents to gain 25 percent equity in their homes, helping them progress along their economic journey. By removing the cost of land from housing deals and securing grants to bridge affordability gaps, RCLT ensures long-term housing affordability, supporting wealth-building and economic mobility.

Rondo CLT also has a Right to Return Program that helps families that were displaced by I-94 achieve homeownership in the Rondo neighborhood. Through the Homebuyer Initiated Program, RCLT provides additional funding and grants to aid eligible buyers. Buyers are required

to belong to one of three descendancy categories and be enrolled in the Homebuyer Initiated Program. By facilitating the Right to Return and the Right to Remain Programs, RCLT re-establishes long-term residency opportunities for families displaced from Rondo and protects current residents from further displacement.

RCLT focuses on operational formalization, education and outreach, and strategic planning to ensure longevity and impact. To ensure financial resilience, RCLT explores alternative investment strategies beyond government dependency. It is supported by a mix of government funding, philanthropic contributions, and for-profit subsidiaries, including revenue-generating rental properties. The team is also investigating tools like Tax Increment Financing (TIF) districts and Business Improvement Districts (BIDs) to further support development.

Golden Thyme Ribbon Cutting Ceremony

Photo Credit: Rondo CLT

Advancing Embodied Carbon Goals

Within RCLT's principle of community wholeness, investing in reparative economic development also includes investing in climate-resilient strategies that advance carbon neutrality and environmental justice goals. The CLT identifies and remediates environmentally compromised sites, such as a former dry cleaner, with plans for full reuse and redevelopment. A rehabilitation framework is being tested to incorporate community input and ensure environmentally sound decisions. Urban agriculture initiatives—including rooftop, hydroponic, and cooperative urban farming—are also being pursued to reduce greenhouse gas emissions and reconnect with the land trust's roots.

Plans include the development of a community-owned geothermal grid and comprehensive stormwater management systems. The existing infrastructure, not designed for large-scale redevelopment, is being upgraded with green solutions to reduce heating and cooling demands. Efforts are also underway to build net-zero housing, despite challenges related to cost and regulatory understanding, which are being addressed through ongoing education.[1]

These efforts require zoning changes initiated by the organization's education-based approach and advocacy. RCLT works with the local government to address zoning issues related to their redevelopment practices. For example, the Beasley project at 642 Selby Ave. is a renovated space that will provide 20 affordable condominiums and 3,000 square feet of affordable commercial spaces for entrepreneurs. To achieve this, RCLT requested and received the area be rezoned from commercial business to traditional neighborhood, which allowed for an increase in density using existing infrastructure.

Advancing Embodied Justice Goals

Rondo CLT's vision, framework, and approach advance the following *Embodying Justice* Goals:

J1 Community Impacts

- *Land Ownership for Collective Benefit:* Holding land in trust for community use and ensuring developments benefit existing residents.

J2 Economic Impacts

- *Local Wealth Building:* Teaching financial literacy and promoting Black wealth as a pathway to repair.
- *Business Development and Incubation:* Through initiatives like the Rondo Exchange, RCLT revitalizes historically neglected corridors with business hubs, supporting small businesses and entrepreneurship.
- *Shared Equity Models:* Removing the cost of land from the housing equation to ensure permanent affordability while allowing buyers to retain 25 percent equity, supporting wealth-building and economic mobility.

J3 Labor and Workforce

- *Democratic Labor Practices:* Community ownership of labor and data.
- *Solidarity Economy:* Hiring from within the community, prioritizing worker ownership, and supporting cooperatives and employee-owned enterprises.

J4 Historical Context

- *Place-Based Strategies:* Tailoring interventions to the specific history, needs, and assets of the Rondo neighborhood.
- *The Right to Return and the Right to Remain:* Re-establishing long-term residency opportunities for families displaced from Rondo and protecting current residents from further displacement.

J5 Community Engagement and Involvement

- *Community-led Organization:* The governance model integrates community voices through board representation and decision-making power.
- *Trust Building:* Rondo CLT is committed to transparency through an open-door policy with the community.
- *Community Control:* Large-scale community planning sessions are held regularly to ensure inclusive engagement.

J7 Housing Security, Equity, and Access

- *Affordable Housing Development:* Using grants and shared equity models to close the affordability gap and promote long-term stability.
- *Net Zero Construction:* Despite regulatory and financial barriers, RCLT is advancing energy-efficient design and sustainable practices.

Rondo CLT envisions a future where Black excellence defines the Rondo corridor. Through strategic land acquisition, intentional planning, cultural revitalization, and community-rooted development, they seek to create a space where residents not only survive but thrive. "As developers," Mikeya Griffin, the Executive Director, says, "we always ask: How will this benefit the community?"

Albina Vision Trust - Portland, OR

The Albina Vision Trust in Portland, OR, was birthed out of a similar history as the Rondo Neighborhood. Displaced by racist urban renewal policies, the community was devastated by Interstate 5, the Veterans Memorial Coliseum and the Portland Public School headquarters facility. The Albina Vision Trust's work is rooted in the belief that "the radical idea that connection can be capital, community can heal, and healing can transform what is possible for generations of children that have yet to draw their first breath." Their work includes a 94-unit affordable housing development, reclaiming the Portland Public Schools headquarters campus to redevelop a mixed-use space and education hub, and the I-5 Rose Quarter Improvement Project, which seeks to repair the damage of I-5 construction. This work is supported by a vision for a clean future, prioritizing environmental sustainability with the goal of developing America's first climate-positive, carbon-negative district. Like Rondo CLT, the Albina Vision Trust focuses on community wealth building in a holistic way, understanding wealth as "the broad array of tiny moments and experiences that fill a person's life with joy."[2]

Workbook:

Equitable Design and Implementation

The following questions are guides for considering a Community Benefits Ordinance in your local context:. Fill in initial thoughts here that can be used in developing next steps in your community.

1. Is the CLT model applicable to your community to support dramatically reducing embodied carbon?

2. What organizational, institutional, and governmental structures, resources, or policies need to be in place for CLTs to work in your community?

3. What financial resources are needed to realize a CLT that supports broader climate action in your community?

4. What place-based community landscape study needs to be completed to realize a community-responsive CLT?

5. How can CLTs be structured to address historic environmental injustices and ensure that low-carbon development benefits are distributed equitably?

6. Does the reparative economic development framework resonate with the needs of your community? How could you modify it or recreate it to fit the values, vision, and needs of the community?

7. How can CLTs be structured to address historic environmental injustices and ensure that low-carbon development benefits are distributed equitably?

PRACTICE STORY 7:

Re-Interpreting Highest and Best Use Through Tribal Land Back Arrangements

Tuluwat Island, Eureka, California

Description:
Land sale and transfer from a local government to a Tribal Nation

Carbon Neutrality (Zs):

Z5 Apartment Size and Space Efficiency Guidelines
Z7 Increasing Density Using Existing Infrastructure

Embodying Justice (Js):

J1 Community Impacts
J4 Historical Context
J5 Community Engagement and Involvement

Involved Parties:
City of Eureka, the Wiyot Tribe, and Dishgamu Humboldt Community Land Trust (Wiyot Tribe)

Boat warehouse at Tuluwat Island

Photo Credit: TR BAKER, CC BY-SA 3.0

Highest and Best Use (HBU), a concept used by real estate and urban planning professionals, refers to the maximum value that can be generated on a given property. The goal of HBU is to enhance or add value to a property, oftentimes through developments or improvements given the legal, financial, and physical constraints associated with the property. Legal constraints can include local zoning and land use ordinances that regulate the type of structure that can be developed and its location on the site. Financial constraints pertain to the costs associated with preparing the site for development, including associated studies (such as an Environmental Impact Assessment). Physical constraints refer to the physical conditions of the site itself, such as acreage and soil quality. HBUs are ubiquitous when determining how land should be planned and utilized. Given its significance to the development process, HBU can be a useful tool in advancing carbon neutrality while also addressing historic injustices.

In 2004, the City of Eureka was celebrated for transferring 40 acres of land to the Wiyot Tribe, marking the first instance in which a U.S. municipal government had voluntarily returned land back to a Tribal Nation.

Reports have connected this land transfer to the Land Back movement, a movement that aims to return land back to Indigenous groups to reestablish political and economic control over their traditional territories. The 40 acres are located on Tuluwat Island and hold both cultural and historic importance to the Wiyot Tribe. Eureka's land transfer to the Wiyot Tribe provides valuable insights as to how land use and zoning regulation systems can be navigated to address historic injustices through collaborative efforts with Tribal Nations. In total, the Wiyot Tribe reacquired approximately 202 acres of land on Tuluwat Island.

Since time immemorial, the Wiyot people have lived across several villages of the Humboldt Bay area, including Tuluwat Island, where they practiced ceremonies and deposited shells at a midden. In 1860, the Wiyot people were practicing their World Renewal Ceremony on Tuluwat Island when nearly 100 women, children, and elders were massacred on the site by settlers.[2] Subsequent development for more than a hundred years after the massacre included changing the island's ecology to accommodate agriculture uses and constructing a dry dock boat repair yard, among other uses.[3] Despite land use and property ownership changes, the Wiyot Tribe continued to maintain its relationship with Tuluwut Island, where conversations regarding the reacquisition of land on the island began in 1996.

The next few decades marked a series of instances where the Wiyot Tribe re-acquired lands on Tuluwat Island. In 2000, the tribe purchased 1.5 acres of land. Then, in 2004, Eureka returned over 40 acres of land

Timeline[1]

1860 – Massacre of Wiyot women, children, and elders; Fort Humboldt relocated.

1870 – Robert Gunther leases the land to the Duff Drydock Company for boat repair and maintenance. It eventually becomes the oldest continuous shipyard in California.

1970s – The Wiyot first ask to return ownership of Tuluwat Island from the City of Eureka.

1992 - Native and non-Native people start holding annual vigils on neighboring Woodley Island to remember the lives lost in the massacre.

2000 – The Wiyot Tribe buys 1.5 acres of land on Tuluway Island.

2004 – The City of Eureka returns over 40 acres of land back to the Wiyout [Methods Unknown]. The Tribe spends more than a decade conducting environmental remediation on site contamination.

2015 – Tribal chairman Ted Hernandez requests the remaining acreage of the island be returned, and the city agrees.

2018 – City Council votes to declare Tuluwat a "surplus property," a legal requirement for the land transfer. Title is transferred without restrictions.

back to the Wiyot Tribe. The tribe was able to hold its first ceremony in over 140 years and spent more than a decade conducting environmental remediation on the site. In 2015, Eureka reaffirmed its commitment to return all city-owned land on the island back to the Wiyot Tribe. Three years later, the Eureka City Council voted to declare the remaining city-owned lands on Tuluwat Island as "surplus property," thereby enabling the title to transfer without restrictions.[4] The Wiyot Tribe has since constructed tribal facilities on the island for cultural programming and continues to practice the World Renewal Ceremony.

Several legal mechanisms were used to facilitate the transactions that enabled the Wiyot Tribe to reacquire the land on Tulawat Island. These include:

- **Land Purchase:** In the United States, Tribal Nations can purchase land from non-Indian landowners. In this instance, the Wiyot Tribe was able to purchase land as part of a land acquisition process.
- **Land Title:** Days prior to the 1860 massacre, settler Robert Gunther purchased Tuluwat Island land from the State of California; ultimately, this land was entered under ownership to the City of Eureka. Prior to the land transfer, Eureka needed to demonstrate a clear title to the California State Lands Commission, as it never officially purchased the land from Gunther.
- **Site Remediation:** Decades of industrial use on the island coupled with substantial ecological changes warranted considerable site remediation. These efforts include removal of invasive species and cleanup of contaminated materials.
- **Surplus Land Status:** To transfer land on Tuluwat Island to the Wiyot Tribe, Eureka City Council needed to designate the land as "surplus land" prior to the transfer. Given the brownfield character of the site, there are limited uses that can occur on the property, which further supports the "surplus" status designation.
- **Memorandum of Understanding (MOU):** A Memorandum of Understanding between the City of Eureka and the Wiyot Tribe was signed to reaffirm the City's commitment to return the land.

Tulawat, the site of the Indian Island Massacre

Photo Credit: Aldaron Laird via AP

The implementation of policy mechanisms involved in facilitating the land transfer to the Wiyot Tribe did not come without challenges. Miles Slattery, City Manager for the City of Eureka, notes that while the City Council and many city staff supported the land transfer, some expressed hesitancy with the process. The city's legal council tends to be risk averse, as one of its primary objectives is to ensure Eureka fulfills its legal obligations; this can considerably slow the process of land transfer. Nevertheless, transferring the property to the Wiyot was something to be done not necessarily because the Wiyot are a Tribal Nation but because the city-owned Tuluwat Island property was underutilized by the city. In an interview, Slattery stated:

"We have vacant properties that have been vacant for a very long time and a lot of people would argue that you need to find the highest and best use for the property. Well… if somebody wanted to do something with that property and build a memorial for somebody and it would turn a property that's vacant into something that is not vacant, even if it's for an event purpose, I think that needs to be considered. This is a little bit more than that, obviously, but it's not for me to say whether or not [it's a] benefit to the tribe. I think the tribe…are appreciative of it but I don't think that we did them a huge favor in any way. It was their property. It was very important to them, and…what happened at that property makes it even more disturbing that it didn't happen earlier"

Slattery continued that vacant property is generally a liability from a municipal standpoint. When viewing it from a HBU perspective, any improvement to a vacant lot is considered better than existing conditions. In the case of the Wiyot Tribe and Tuluwat Island, there was expressed interest in restoring the land back to its natural form and continuing to engage with the land for cultural purposes. And though cultural events like the Wiyot's World Renewal Ceremony don't directly generate revenue, the significance of the Tribe's control over its lands and cultural activities does bring visitors into the region. Thus, there are indirect benefits that the city and its residents can enjoy through this land exchange.

The relationship between Eureka and the Wiyot Tribe has continued after the land exchange. The City's Housing Element requires the utilization of city-owned properties to develop affordable housing. Dishgamu Humboldt Community Land Trust, a housing branch of the Wiyot Tribe, has been able to acquire a bid to develop a property through this process. This has not only contributed to Eureka's overall housing stock but has also enabled the tribe to create housing on its ancestral lands for both tribal and non-tribal members in the region.[5]

A Comparative Look

In contrast to the Vancouver, BC, practice story that includes the Swx&wú7mesh Úxwumixw (Squamish Nation) and the involvement of the judiciary system in Canada, this example portrays a voluntary, proactive process by the City of Eureka in returning land to the Wiyot. This example also stands in contrast in that the land is envisioned as being retained in a natural form and used for cultural purposes without a housing development on it. Thus, it is also an example of realizing ecological and potential carbon sequestration benefits. Together, these two practice stories demonstrate the diversity of interests different Indigenous groups may hold as they plan for their respective futures.

Practice Story Questions

Q1. How can highest and best use (HBU) support reducing embodied carbon?

A. Highest and Best Use has historically been used in planning and development to assess how a parcel of land can increase its financial value. As the City of Eureka practice story shows, the HBU concept can be implemented based on a city's particular needs as it pertains to its planning and development goals. While it was Eureka's objective to improve under-utilized city properties to a better use, other municipalities may have different goals, including dramatically reducing embodied carbon. Your city may be able to evaluate which policies and programs are conducive for land use and development and create explicit goals to achieve carbon neutrality when making land use and zoning decisions. This changes the application of the HBU concept beyond profitability and centers carbon goals as part of the development process.

Q2. How does the Land Back movement address historic environmental injustices?

A. The Land Back movement is based on returning lands back to Indigenous groups to re-establish political and economic control over their traditional territories. Indigenous groups experience land dispossession through the Settler Colonial process, which has been facilitated through land theft, treaty breaking, and violence. Consequently, it is widely understood that Indigenous groups have experienced historic (and ongoing) injustices, and the current landscape is fundamentally different from pre-colonial times. City participation in returning land back to Indigenous groups can take many forms, but it ensures that tribes have control over their traditional territories. While the Wiyot Tribe was able to acquire lands through sale, other options are also available, including automatic renewal of 99-year leases, covenants, and easements to ensure tribes have access and control over their lands. It is important to note, however, that ensuring that Indigenous groups hold title over a parcel of land is the most important way to safeguard their ability to steward their lands.

Q3. How does the Land Back movement ensure that low-carbon development benefits are distributed equitably?

A. In the U.S. and Canada, federally recognized Tribal Nations and First Nations have the ability to zone and develop land within their jurisdictions. The ability to plan and zone is grounded in each Indigenous community's inherent sovereignty and is not required to follow local municipal zoning laws. In the City of Eureka practice story, developing relationships between the City and the Wiyot Tribe underscored the ability to enter into conversations about returning land back to the tribe. Much like the Land Back process, relationships with Tribal

Nations will be paramount for synchronized land use and planning efforts, especially as pertaining to low-carbon development goals. Understanding common ground across government types will be critical to ensure low-carbon development benefits are distributed equitably and to identify opportunities to share methods of implementation for both municipal and tribal governments.

Workbook:

Equitable Design and Implementation

The following questions are guides when considering a collaboration between your local government and tribal and Indigenous governments. Fill in initial thoughts here that can be used in developing next steps in your community.

1. What Indigenous group(s) have traditional stewardship responsibilities over the lands on which my city exists?

2. What Indigenous group(s) may have been relocated into the area where my city exists?

3. Does my city have any formal government-to-government relationships with any Indigenous groups? If so, what are the policies that outline this relationship?

4. Where is there overlap between my city's jurisdiction and an Indigenous government, whether it is reservation boundaries, treaty boundaries, or traditional stewardship areas?

5. What does it mean for my city and/or Indigenous group(s) to have a meaningful relationship with one another?

6. What city-owned lands can be identified to return back to an Indigenous group?

7. What is the political climate in my city and community to support a land transaction back to an Indigenous group?

8. What is the legal advice from my City's legal office regarding collaboration with Indigenous group(s)? What is the legal advice for returning land back to an Indigenous group(s)?

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Practice Story 6 - Rondo CLT: A Reparative Model for Just Neighborhoods and Community Wholeness:

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Practice Story 7 - Re-Interpreting Highest and Best Use through Tribal Land Back Arrangements:

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