



Appendix 2: Potential Benefits of Updating Zoning

Zoning updates can play a role in integrating positive land use strategies throughout policies and geographies, increasing the likelihood that development will address today's pressing challenges and meet market demand. This section outlines potential health, social equity, resilience, and building decarbonization benefits of zoning updates.

Potential Health and Social Equity Benefits of Updating Zoning

Policies that may seem unrelated to health—including zoning—can have profound impacts on people’s well-being and access to opportunity. Outdated zoning policies perpetuate and exacerbate public health threats, like physical inactivity, obesity, and racial and economic segregation.¹

Updating zoning can promote healthy and equitable development. And zoning and government incentives, policies, and regulations can drive adoption of health- and equity-promoting practices by the real estate industry. A 2019 industry-wide survey of real estate practitioners found that 32 percent of respondents took advantage of zoning and other policy incentives to help implement health and social equity practices, such as including outdoor amenities and infrastructure to promote biking and walking, building affordable housing, and supporting existing local businesses.²

Zoning reforms can update or eliminate outdated policy provisions, like minimum parking requirements and prohibitions on multifamily homes and accessory dwelling units, to more equitably promote development that advances improved public health outcomes.

Updates that allow or require less parking can decrease development costs, promote land use patterns that support walkability, and mitigate negative environmental consequences disproportionately borne by those with lower incomes—who are also less likely to own a personal automobile. Policy updates

that support multifamily development can lessen housing costs and provide greater access to health-promoting features, such as parks and trails, for more people.

Zoning policies can explicitly require or incentivize health-promoting features to be included in development projects—playing a role in increasing access to such features and creating numerous benefits, including the following:

- **Parks.** Zoning can require or incentivize the provision of parks and other open spaces. Parks create “cool green space islands” that reduce surrounding air temperatures by at least 2 to 4 degrees Fahrenheit (1.1 to 2.2 degrees Celsius). Mitigating extreme heat is necessary to support public health, especially in low-income and elderly communities.³ Parks with green infrastructure features, such as living shorelines, new wetlands, and greenways designed to be underwater during floods, can also mitigate local climate extremes and provide safer spaces to congregate or engage in exercise during times of disruption while supporting daily quality of life and improved resident health outcomes.⁴ And investing in parks in areas without sufficient open space can help prevent chronic illnesses and reduce symptoms of depression; the positive effects of exposure to green spaces are often amplified in lower-income communities.⁵
- **Active transportation.** Zoning can directly influence the form of development and whether people can meet their daily needs without driving. Traditional zoning separates uses and makes walking to meet daily needs difficult, but zoning updates can promote denser mixed-use development with sidewalks, trails, and bike lanes that make walking or bicycling safer and more convenient. People who live in neighborhoods

with shops and retail establishments within walking distance have a 35 percent lower risk of obesity.⁶ Building walkable places also contributes to reducing automobile use and can lower carbon dioxide (CO₂) emissions. An estimated 42 percent of current car trips under three miles could be substituted by walking or biking, which would reduce CO₂ emissions by 2.8 kg CO₂e per person per week—equivalent to 10.9 percent of all car travel.⁷ Reducing automobile travel would also lower waste heat from cars, helping to mitigate the urban heat island effect.⁸ Improving air quality plays a significant role in reducing incidences of respiratory illness.

- **Transit.** Zoning updates like transit-oriented development (TOD) overlay zones can promote development that supports physical activity and reduces chronic disease, including type 2 diabetes and high blood pressure, due to factors including increased rates of walking.⁹ When advancing TOD, cities can also align zoning and policy actions to advance racial equity, wealth building, public health, and climate resilience goals through equitable transit-oriented development (eTOD) policies.¹⁰
- **Healthy food.** Studies show improved health outcomes for residents of areas with increased access to healthy foods and higher densities of full-service restaurants and grocery stores.¹¹ Zoning incentives can promote inclusion of such features and/or community gardens in new projects.
- **Economic opportunity and access to services.** Employment and income have a direct impact on life expectancy, quality of life, and health care costs.¹² Zoning provisions, such as parking requirements, play a role in development feasibility, where housing and retail are built, and who has access to jobs and services via walking, biking, and transit.¹³

- **Affordable housing.** The availability of affordable housing has been shown to lead to positive health outcomes and is essential for promoting racial equity. A 2021 peer-reviewed study examined the relationship between cardiovascular health and inclusionary zoning (IZ), which encourages or requires developers to create below-market rental apartments or owner-occupied housing in connection with local zoning approval of a proposed market-rate development.¹⁴ In places with IZ, residents overall had “uniformly better” cardiovascular health outcomes, such as lower blood pressure, cholesterol, and rates of blood pressure medication prescriptions. The study controlled for income, poverty level, employment, measures of inequality, and racial composition and found that places with IZ policies had better overall heart health.^{15,16} Ensuring that zoning supports housing affordability is also essential for advancing racial equity. People of color are significantly more likely than white people to experience evictions and homelessness in the United States because of ongoing structural racism that has excluded Black people and others from equal access to housing and opportunities for economic mobility.¹⁷
- **Development that limits exposure to the negative health effects of the warming planet.** Current density restrictions may push development into areas with significant climate risks, including flooding, wildfires, and extreme temperatures that lead to negative health consequences. Zoning reform can promote more compact development in areas with fewer climate-related health risks.¹⁸

Potential Resilience Benefits of Updating Zoning

As climate change precipitates unprecedented events such as devastating storms, intense wildfires, widespread flooding, and severe droughts, municipalities are revising their laws, policies, and plans to adapt to new conditions and guard against future disasters. As a part of this wave of climate-conscious reform, the concept of adopting zoning policies for the express purpose of building resilience against climate change impacts has recently come to the fore.

Zoning laws pose an opportunity to incentivize and guide new development to conform to standards that recognize and protect against the myriad threats posed by climate change impacts, enabling structures to withstand the test of time. In some instances, these standards may be more stringent, as is the case with increased setbacks for wildfire damage prevention. In others, as seen in various incentive programs, standards may afford developers greater flexibility. Examples include:

- **Safety.** Zoning can restrict development in hazard-prone areas and promote growth in lower-risk locations, creating a safer built environment.¹⁹ Communities with zoning that incentivizes development in less exposed areas and disincentivizes development in hazard-prone areas are able to both mitigate losses from weather and climate disasters and recover more quickly. In addition to potentially saving U.S. communities trillions of dollars each year from avoided

damages, zoning for resilience against known hazards also reflects prudent governance, especially in light of the growing legal precedent supporting policies that protect community health, safety, and welfare in the face of known risks.²⁰

- **Service continuity.** Unprecedented environmental conditions precipitated by climate change may cause residents and local businesses to be disconnected from important resources and facilities such as food, shelter, health care, potable water, communication channels, electricity, and roads. What this translates into is temporary and—depending on the severity or duration of the event—permanent strain on individuals and local businesses. While many U.S. communities have disaster response plans, zoning can help lay the groundwork for effective response and recovery by managing siting and accessibility of critical infrastructure like roads, hospitals, community centers, utilities, and commercial centers, in addition to ensuring timely access to structures during disaster response and recovery. This is accomplished through a wide array of policies, for instance, policies mandating multiple points of ingress and egress on properties or those that encourage a high level of connectivity within the street network.²¹

In 2021 alone, there were an estimated \$2.155 trillion in damages and costs resulting from weather and climate disasters within the United States²² and, according to a report published in the same year by CoreLogic, one in 10 U.S. residential properties were impacted by natural disasters.²³

- **Equity.** Although some can afford to rebuild and replace assets they have lost, many without adequate insurance or savings are unable to recover their losses. For this reason, people of color, those with low incomes, and seniors are at the greatest risk of being displaced in the wake of climate change and climate change–related disasters.²⁴ This is a direct consequence of legacy zoning policies that have hampered these populations’ ability to accumulate wealth, build equity, and gain access to resources important to recovery from shocks and stresses. Even vulnerable populations residing in areas regarded as safe from regional climate change impacts may be displaced as the desirability of land in these areas increases (a recent phenomenon dubbed “climate gentrification”).^{25,26} Neighborhoods in which people of color and those with low incomes reside tend to have experienced historical disinvestment and may be further burdened by the shocks and stresses of climate change as well as rising costs of rent, property taxes, and goods and services. For this reason, while local economies in communities experiencing climate gentrification may thrive, the benefits of population growth, new development and commercial activity may not reach all residents equally, and in some instances, the original members of these communities may be displaced. Zoning can help shepherd equitable economic growth and development in communities by keeping factors that contribute to displacement in check. For instance, zoning policies that incentivize construction of affordable housing and contribute to more walkable and transit-friendly neighborhoods can relieve the cost burden of housing and transportation for low-income residents and improve longstanding issues of poor accessibility in communities of color.^{27,28}
- **Social cohesion.** Research has shown that socially cohesive communities—communities with high degrees of interaction and organization—tend to be more resilient against climate change.²⁹ Many factors inherent to the built environment and shaped by zoning play a direct role in the development of a sense of social cohesion in a neighborhood. Zoning is one such key factor. It can create the conditions to bring more people closer to community amenities and one another through increased density, and it can generate more accessible places for community members to congregate and enjoy activities together by preserving space for recreation and gathering, among other benefits. The same casual relationships that are built during these interactions also help residents support each other during times of hardship. In this manner, communities that apply zoning to create space for interpersonal interactions also foster greater community resilience.
- **Financial well-being.** Zoning that steers development away from high-risk areas and encourages construction of features that harden structures against known climate risks also supports economic growth in communities. Such zoning can guard residents and businesses from avoidable losses stemming from climate impacts, such as high winds, flooding, and fire. Zoning can create conditions to minimize the costs of repair and reconstruction and business downtime on a project-by-project basis, or it can accomplish this indirectly through reductions in the cost of insurance coverage associated with development consistent with policies that plan for climate resilience.

Potential Building Decarbonization Benefits of Updating Zoning

Zoning updates can support the goals of building owners and cities pursuing sustainable real estate. More than 1,000 cities and 1,200 companies globally have joined the U.N. Race to Zero campaign, a commitment to achieve net zero carbon emissions by 2050³⁰—making it clear that promoting low-carbon building practices is increasingly being prioritized by owners and municipalities alike.

Since buildings contribute 40 percent of the world's CO₂ emissions, they are an essential target of many decarbonization initiatives—a cause with which zoning reform can assist by encouraging the development of greener buildings.³¹

Zoning initiatives that create specific standards for low-carbon design, development, and operation are already in development or in place in some locations, actively supporting development of greener buildings. These initiatives exist nationally, including a sustainable development ordinance in Denver³² and electrification regulations in Sacramento.³³

The Boston Planning and Development Agency's Zero Net Carbon Building Zoning Initiative has a goal to develop a zero net carbon standard for new construction to contribute to the city's goal of carbon neutrality by 2050.³⁴ The initiative's Technical Advisory Group recommended that net zero carbon buildings should optimize on-site renewable energy production by being solar ready, defining a minimum required area for solar production, and allowing participation in the SMART (Solar Massachusetts Renewable Target) program—an initiative of the Massachusetts Department of Energy Resources to create incentives to develop solar opportunities.

Zoning policies for sustainable development can be complemented by other local regulations that help owners achieve their goals, such as building codes and ordinances. Many communities have advanced building codes that require owners to pursue deeper levels of resilience, health, and sustainability practices. Several U.S. cities also require LEED certification or net zero carbon performance for certain buildings through low-carbon building ordinances, which often apply to buildings over a certain size. In San José, California, new commercial buildings over 10,000 square feet must meet LEED Silver requirements at a minimum, which is a common goal adopted in other cities, like New Castle, New York.³⁵

Tension can exist between affordability and sustainable measurables because developers may offset building requirements with higher rents or sale prices. However, in the long term, sustainable upgrades lower costs through lower utilities and longer use lives of infrastructure. In the short term, developers may seek incentives that reward building decarbonization features.

Zoning updates can be influential in shaping the future of communities and can make them more efficient in conjunction with other policies. Specific examples include the following:

- **Removing legal barriers to the inclusion of energy-efficient design features.** Updating regulations in zoning codes that inhibit energy efficiency in building designs can incentivize owners to pursue deeper sustainability goals. For example, New York City created zoning exceptions for exceeding maximum height and lot lines in exchange for including technology such as solar panels and sunshades to reduce heat gain, which the city anticipates saves residents about \$800 million a year.³⁶ However, lot lines and historic preservation requirements still present barriers to retrofitting building exteriors—for example when adding exterior insulation to a building would result in extending beyond the current property line.
- **Facilitating the incorporation of new technologies.** A wave of interest in net zero buildings and energy efficiency has driven innovation in low-carbon building technologies, whether through solar facades, heat pumps, or microgrids and distributed energy systems. Zoning that can establish where and how these systems can be used can encourage developers to implement these technologies without disrupting the development process through uncertain review processes.
- **Encouraging high-performance buildings.** Zoning can indirectly or directly encourage higher-performing buildings. Indirectly, buildings in areas zoned for greater density benefit from boosts in energy efficiency provided by other buildings, for example by being insulated by buildings attached on either side or when buildings shade each other from solar gain. Similarly, buildings in areas with zoning to encourage more green space or greater tree canopy can benefit from the natural cooling these spaces provide, reducing reliance on energy-intensive air conditioning. Directly, zones that require or incentivize LEED or other low-carbon building certifications or on-site renewable energy—often in exchange for greater floor area or height—lead to cost savings and lower emissions and energy use. For example, the U.S. Department of Energy reviewed 22 LEED-certified buildings managed by the U.S. General Services Administration and saw CO₂ emissions were 34 percent lower, they consumed 25 percent less energy and 11 percent less water, and the buildings diverted more than 80 million tons of waste from landfills.³⁷

- **Expanding the coverage of building performance standards.**

The United States has historically been slower to increase energy or carbon performance requirements for single-family homes, especially compared to Europe and Canada.³⁸

Indeed, recently passed building performance standards (BPS) setting energy or carbon maximums for existing and new buildings in cities like Boston, St. Louis, and Washington, D.C., focus primarily on larger commercial and multifamily buildings, which use more total energy and emit more total carbon, but are vastly fewer in number and land area coverage than single-family homes. Zoning updates can make multifamily and mixed-use buildings easier to construct and allowed in more areas, and thus more common over time. Combining this reform and growth in construction with a BPS ordinance can help reduce a city's energy and greenhouse gas emissions intensity even as it builds up.

- **Opportunities to integrate energy efficiency with affordable housing goals.** Zoning policies that provide development bonuses, like increased density, for incorporating affordable housing or achieving higher energy performance (or both, as in the case of Phoenix, Arizona's sustainability bonus system³⁹) have led to reduced emissions and larger affordable housing stocks in cities with tight markets.⁴⁰

CLIMATE-SMART ZONING AND PERMITTING PLAYBOOK

Based on best practices from around the state, the Massachusetts Area Planning Commission compiled the *Climate-Smart Zoning and Permitting: Net Zero Playbook* to help municipalities develop zoning and permitting approaches that facilitate low-carbon or net zero buildings, with techniques ranging from by-right solar to requiring energy efficiency licensing for rental units.

[Learn more here.](#)

