

The Movement for Zoning Reform in the United States

An STS Research Paper

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Preface

Land use and development patterns in the United States contribute to high energy demand for transportation and deficient stocks of affordable housing. Construction practices and land use reforms can mitigate energy intensity and environmental damage.

A private developer is seeking my capstone team's help to develop and design construction documents for a new hotel in the Pantops area of Charlottesville. The team selected a location and building orientation consistent with the county code, designed a parking lot, planned site grading, developed a compliant stormwater management plan and planned for utilities. The research team sought to develop a design serving the interests of the hotel's architects and guests in an economical design.

In the United States, land use patterns and transportation policies impose low-density development that promotes car driving, and consequently high per capita greenhouse gas emissions. Nevertheless, advocacies, companies and policymakers have promoted some reforms that may soo reduce the energy intensity of US land use and transportation.

Review of Research

In the United States, zoning modifications and other kinds of land use and transportation reforms may reduce greenhouse gas emissions. Successful reforms require coalitions, it requires forming coalitions of knowledgeable and affected individuals who can demonstrate to politicians how the benefits of reforming current zoning outweighs the costs.

The Federal Transit Authority (FTA) has studied large projects, such as regional railroads, and small ones, such as adding bus and bike lanes in cities. Nonprofit advocacies have promoted some rail projects. Yet such projects are controversial, and some have been stopped. Public transit projects often run massive deficits. For the Tide light rail system in NCritics condemn such projects as boondoggles that waste taxpayers' money. Some defenders of the status quo have argued that if public transit connected suburbs to cities, it would attract crime. Many Atlanta suburbs resisted expansion of the MARTA transit system into their areas. Such resistance develops transit as a political tool (Estep & Coyne, 2019). More often, however, passengers report favorable experiences with public transit, such as in the Netherlands' smart cities (Wilde, 2020).

Journalistic pieces offered strong analysis into the battles between coalitions for-and-against zoning change. Furthermore, they gave insight into how zoning laws came to be often with the intent of segregating cities by class and race. Being able to read question-and-response between journalists and pro-reform activists was very enlightening as it provided a human face and emotion to the issues. For example, an article from the outlet New Politics detailed a successful movement in Baltimore to ban crude oil terminals and production near downtown (Fabricant, 2018). In this article, quotes from locals involved were helpful in

understanding how the current zoning situation affected their daily lives. In this case, the odorous, toxic fumes from burned oil and coal impacted the lung health of residents, and toxic spillage from the bay was seeping into the soil in the neighborhood.

When analyzing the effectiveness of legislative changes and pro-sustainability initiatives, statistics and data about population growth and economic output of an area were big indicators in the success of such initiatives. For example, an FTA case study outlined how Salt City City benefited from the implementation of a public rail line around downtown and the city's periphery (FTA, 2009). In the last 25 years, the city has grown by 17%, and a huge, densely populated suburban area of 1.3 million residents. Deeply detailed documents from lobbying and consulting groups on how a locality could make legal/zoning adjustments to increase sustainability were also useful in determining the most successful strategies for enacting reform. While I ultimately did not use this source in my following argument, the Congress for New Urbanism published a guide for the Vermont Agency of Commerce and Community Development to aid them on changing the state's zoning bylaws to increase walkability and economic development in a state seeking to attract more residents (CNU, 2020). It visually illustrated how traffic lanes can be optimally set-up to accommodate cars, bikes, and other micro-transportation, and how minimum lot sizes can be set based on the necessary street width in any town. It helped paint a picture of what smaller-scale zoning reform could look like in an aesthetically pleasing way.

How Can Zoning Reform Occur in the US?

In American cities, zoning ordinances separate land uses and govern permissible building footprints and types. By separating land uses and deterring the development of affordable housing, zoning can practically require residents to drive between everyday destinations. Zoning typically mandates low-density, single-family homes within cities, driving up land prices and constraining housing supply (Thompson, 2019). Such mandates have caused a rise in greenhouse gas (GHG) emissions and created de-facto segregation in cities.

Furthermore, these laws increase cities' carbon footprints by complicating traffic patterns (Meyersohn, 2023; Norris, 2023). Zoning reform supporting diverse housing choices is essential in making a sustainable future. It creates lighter density where it is most needed: inner cities and suburbs that are best served by public transit. Also, it mitigates sprawl and environmental impacts of car travel. Moreover, research indicates that urbanism results in lower levels of obesity and associated health problems. Walkable communities provide opportunities for impromptu social gatherings, thriving local businesses, and shared green spaces to support emotional and mental health (Barrie, 2023).

In the United States, despite widespread demands for zoning reform, many proposals have often failed because groups with a material interest in the status quo have characterized them as threats to property values, infringements of property rights, or exacerbations of criminality. However, a number of professional networks, volunteer organizations, local governments, and corporations with a stake in a sustainable future have successfully and creatively used their resources to influence lawmakers, and to establish initiatives that support a more environmentally-friendly society.

Coastal Zoning Reforms

Worrisome research on global sea level rise has spurred zoning changes in coastal cities. Published research indicates that average global sea level is expected to rise about 0.4 inches annually by 2050, meaning that many low-lying areas will experience land loss (Sweet et al., 2017). Thus, coastal cities need to reevaluate where and how new construction can occur. In Norfolk, Virginia, city leaders overhauled its zoning code to prepare for the increased frequency and severity of flooding. (Velasco & Cohen, 2022). Reforms created zoning overlays citywide that encourage new development on higher ground, mandate elevated building foundations in areas most vulnerable to flooding, and create incentives for developers to relinquish their land rights on flood-prone properties (City of Norfolk, VA, n.d.).

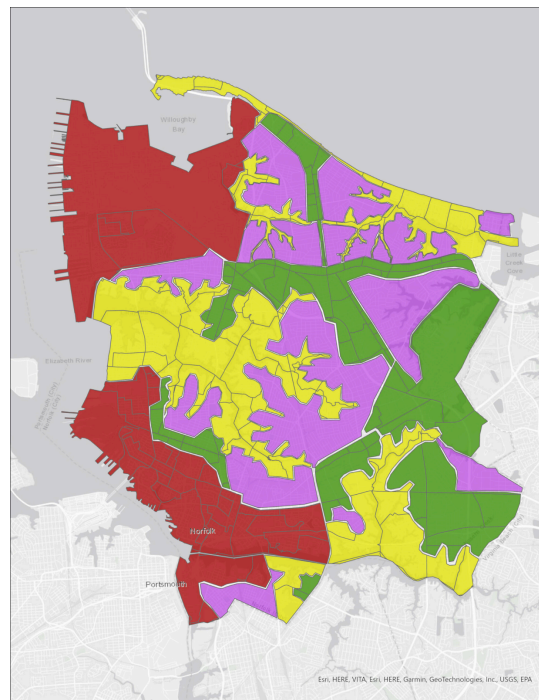


Figure 1. Norfolk’s Vision 2100 Zoning Overlays. **Red** = mixed-use, dense development, **yellow** = flood protection needed, **green/fuchsia** = need better transit connection, less flood-prone (City of Norfolk, n.d.).

In Norfolk's Vision 2100 plan, the above map was created to delineate areas that are most prone to long-term flood damage, and neighborhoods that should be sustainably re-developed. The map outlines red zones as economic hubs in which mixed-use, dense development should be encouraged. Yellow areas are most prone to floods and need improved infrastructure to adapt. Green and fuschia-colored districts are less prone, and need better transit connections to the red areas, and mixed-use properties should be financially encouraged to shift more population and economic activity into those areas. Vision 2100 is a great example of necessary zoning reform as it should help protect Norfolk from continued economic and physical damages due to flooding which is only expected to worsen.

Public-Private Partnerships for Sustainable Transit

There are many successful applications of public transit systems nationwide that have been critical in lowering urban GHG emissions. In Salt Lake City in 1997, "Envision Utah" was formed as a public/private partnership (a.k.a. a "P3") to preserve critical lands, promote water conservation and clean air, and to improve the lackluster regional transportation system (FTA, 2009). Residents selected an economic development plan centered around new public transit rail lines, and were able to convince the city government to adopt their wishes.. The Utah Transit Authority is building new train lines with grant funding from FTA's (Federal Transit Administration) New Starts program as well as local sources. Today, downtown Salt Lake City is renowned for its low traffic, clean streets, and easy-access trains and buses that connect neighborhoods to economic, entertainment, and tourism hubs.

Another P3 on a smaller scale is Maine's Downeast Transit. This bus service connects the towns of Bangor, Bar Harbor, Blue Hill, Ellsworth, and Southwest Harbor. Residents and visitors

rely on the service to access jobs, shopping, ferry terminals, and recreation. Transit vehicles carry bicycles, further expanding the range of destinations reachable by bus. Downeast Transportation runs two primary services – access to major employers such as Jackson Laboratories in Bar Harbor, and the Island Explorer shuttle system on nearby Mount Desert Island. Downeast connects employees from dozens of miles away to the Laboratory and nearby businesses all day (FTA, 2010).



Figure 2. Downeast Transit’s Route Map (Downeast Transit, n.d.)

Downeast collects FTA “jobs access funds” to help provide other transit service in the county at off-peak times. Moreover, Downeast has effectively partnered with public and private entities securing long-term funding for the Island Explorer Service from the National Parks Service and L.L. Bean, which is headquartered in Maine. According to Downeast’s website, the service eliminates more than 1 million vehicle miles per year from local roadways (Downeast Transit, n.d.). Sunny Millet, the Partnership Coordinator for L.L. Bean states “we really want

people to be able to enjoy these places for years to come, and the bus system really helps protect the environment of Acadia” (L.L. Bean, 2022). It means cash savings for workers, new job opportunities for those without cars, less congestion, and reductions in GHGs linked to global climate change.

Local Renewable Energy Development

Adoption of renewable energy and local-level management of energy markets will be key in reducing the carbon footprint of our modern, industrial society. A great example is the small town of Greensburg, Kansas- “the little town that could.” When a tornado devastated Greensburg in 2007, half the town’s 1,400 people left (Moodie, 2017). Those who stayed chose to rebuild their community with sustainability in mind. Greensburg met its 100% renewable energy goal in 2013 by using solar and geothermal technologies. Just outside town is a 12.5-megawatt wind farm which provides more energy than the town needs, allowing Greensburg to sell the excess. “The wind that destroyed Greensburg is also the wind that would make us energy sustainable,” said Mayor Bob Dixon. Cost was an issue, as building the wind farm was fairly expensive for the small town. Yet, the investment is paying off in the long run as Greensburg’s largest buildings now save roughly \$200,000 annually in energy costs, which are all LEED certified. Vermont’s largest city, Burlington, achieved 100% renewable electricity in 2014 after it bought a nearby private hydropower plant. The facility uses the Winooski River, a tributary to Lake Champlain, to generate electricity from the natural environment instead of from burning fossil fuels (Burlington Electric Department, n.d.). Burlington estimates that it will save \$20 million over the next two decades by using hydropower.

There are challenges in adopting renewable energy on a large scale in the US. Many states have highly regulated energy markets in which the state dictates which electric providers consumers must buy from. However, many states have competitive deregulated markets in which renewable energy providers are able to promote their product more freely. An effective tool in lowering local carbon footprint are community choice aggregates (CCAs). CCAs allow municipalities to decide which electric power plants they purchase electricity from, and they can negotiate lower rates and larger renewable portfolios from electricity providers (Blanchard, 2021). CCAs are usually run directly by a city or county government, and are responsible for procuring wholesale electricity on behalf of retail customers, while investor-owned utilities remain responsible for local transmission and distribution networks. CCAs are usually “opt-out” programs in which covered citizens must deliberately opt out of the CCA and return to traditional utility service. The opt-out structure makes it such that local governmental entities, other than utilities, to be default electricity providers (O’Shaughnessy, et al., 2019). On average, consumers in CCAs pay lower rates, and they can be more educated on where their energy comes through local education campaigns and municipal council meetings (MAPC, 2014).

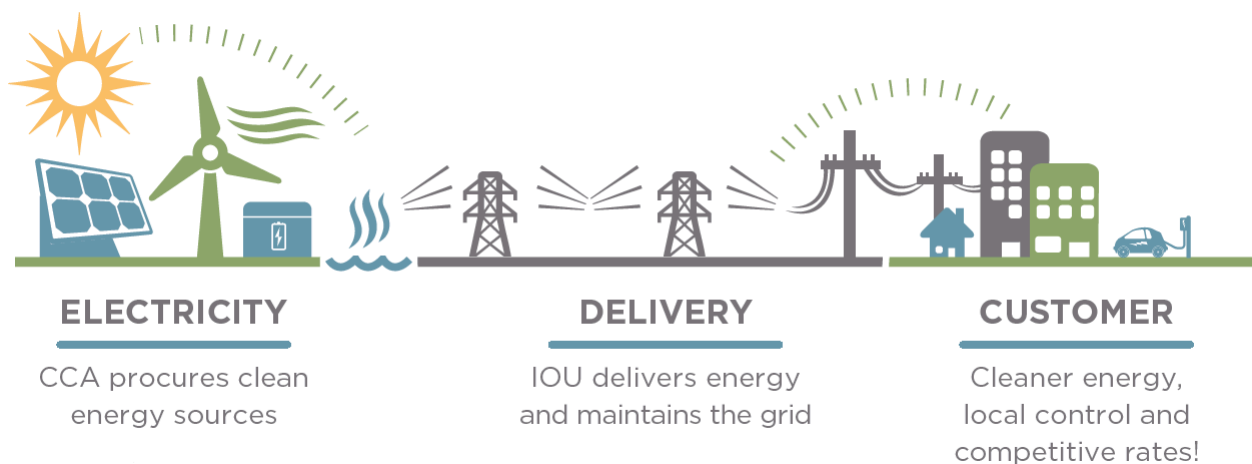


Figure 3: Illustration of basic CCA processes (CalCCA, n.d.)

For instance, about 76% of the 178 active CCAs in the service territory of Illinois currently offer a rate equal-to-or-lower than typical services. Most CCA interviewees reported that their CCAs were exploring additional services such as demand response, energy efficiency, and electric vehicle charging programs.

Dense urban development helps reduce GHG emissions and energy consumption. Research indicates that mid-sized cities with relatively low population densities that primarily consume fossil-fuel-based electricity sources (e.g. Birmingham, AL and Louisville, KY) have some of the highest per-capita CO₂ emissions and water footprints related to electricity consumption. Larger cities with higher population densities (e.g. Los Angeles, CA, New York, NY, and Seattle, WA) have lower per capita CO₂ and water impacts (DeRolph, et al., n.d.). There are many cities that have made 100% renewable energy commitments, yet these cities are far and few between. With generally high energy consumption, environmental impacts of cities sprawl into their suburban periphery, and are often unaware of these impacts and thus unmotivated to undergo a transition to more sustainable energy sources. Motivations for a community to transition to more sustainable energy consumption often include environmental education, media campaigns and/or social justice movements. However, low public support can be overcome with state legislation and personal incentives. For example, low public support for such a transition was reported for Texas by this study. However, the state has a deregulated energy market, currently leads the nation in wind energy adoption, and requires localities to have a minimum renewable energy percentage in their consumption portfolio.

Promoting Electric Vehicle Charging Infrastructure

Cities have incentivized construction of electric vehicle charging stations by partnering with private entities and politicians. In 2020, Virginia passed “right-to-charge legislation,” ensuring that homeowner/condominium associations cannot restrict a resident from installing EV charging stations on property owned by the resident (Fairfax County, n.d.). The process for this should be to survey residents, identify optimal charging locations, review relevant policies/budgets, consult electrical contractors, determine ownership structure of charging stations, and then to install charging structures. Headwaves for similar legislation at an HOA-level (homeowner’s association) have spurred in the Fairfax community of Herndon, VA (Tuss, 2023). An HOA-governed neighborhood recently threatened a lawsuit against a resident for attempting to install an EV charging station on her property. “I would like to have an EV,” Herndon resident Michaela Janotova said. “I would like to be able to charge it here at home.” “The law says that HOAs can make or can establish reasonable restrictions,” she said. “The question is what is reasonable. What’s reasonable to you doesn’t have to be reasonable to me.” Clearly, there is a hunger for more ease-of-ownership for EVs, and laws need to be carefully written to prevent HOAs/localities from thwarting EV ownership for superfluous reasons.

A recent study conducted in Dublin identified 770 optimal locations citywide for charging stations with Geographic Information System (GIS) data (Charly et al., 2023). The criteria for selecting charging sites was based on characteristics of current EV users, and their main uses for their EVs. The study found that proximity to major roads, places of work or study, location of car parks, residences, and lamp posts were the best locations for urban charging stations. Lastly, there needs to be an industry-wide standard in the design of charging plugs such that any normal EV, of any manufacturer, can use any common charging station in public

(Rosevear, 2023). Tesla and Ford teamed up last year when they announced a deal that gives Ford EV owners access to the roughly 12,000 Tesla superchargers in the U.S./Canada with new models made in 2024 and beyond. "We're deeply honored that [Ford] has signed up to use our connector and gain access to our charging network," said Tesla CEO Elon Musk during a recent company earnings call. "We strongly believe in helping other car companies to accelerate the EV revolution."

Professional Organizations Using Their Leverage

Professional and grassroots organizations have been powerful drivers of zoning reform. Organizations like the American Planning Association, a consortium of urban planners, architects, construction firms, and real estate developers push for zoning reform in meaningful ways. A main way is by lobbying politicians to push their agendas forward (Brooks, 2022). At the 2022 National Planning Conference in San Diego, a Culver City, CA council member named Alex Fisch credited planners with making zoning reform possible in his community by giving elected officials the fact-based analysis they needed to feel confident pushing reforms forward. Fisch stated "planners set the stage so that someone who wants to can take the political step of saying that we should hear all the benefits of land-use reform." Fisch then elaborated "it gives people the factual basis to go to the community and say, look, our consultants say reform is the right thing for [our] community." Smart Growth America is another NGO composed of professionals and volunteers pushing for sustainability-focused reform. Organizing through social media and local meetups, advocates have fruitfully advanced zoning overhauls nationwide. A recent success story is in the Washington state legislature. In a session billed as "the year of housing" with Governor Jay Inslee as a prominent cheerleader, legislators weighed a slew of bills aimed at opening more territory to a variety of housing types, especially in

proximity to public transit. While bills to eliminate restrictions on apartments near rail and rapid-bus stations were delayed, the legislature did adopt sweeping bills to legalize middle-density housing and accessory dwelling units (ADUs) statewide. “Right now, zoning is in the national consciousness,” said Toccarra Nicole Thomas, executive director of the Form-Based Codes Institute at Smart Growth America. She noted that nearly every state in the union has a severe shortage of homes totalling a record 4 million units. “It is clearly at the root of the housing crisis, and it’s getting attention for that. Before 2020 you would say ‘zoning’ and their eyes would glaze over. Now, everyone knows it’s critical” (Goldberg, 2023).

Millman National Land Services is a private corporation that has advocated in favor of environmentally-friendly zoning reform. They vouch for environmental review processes as “a powerful way for local municipalities to regulate the development in their jurisdictions” (Millman, 2021). Many localities now mandate such reviews as a result of corporate lobbying. For example, Camden, NJ in 2015 began requiring all developments to submit an Environmental Impact and Benefits Assessment to be reviewed by the planning and zoning board. Newark, NJ in 2016 passed an ordinance that requires industrial and commercial developments to submit an environmental checklist with their application. Numerous professional organizations have been such tremendous supporters of zoning reform as they have the opportunity to earn revenue from being hired to oversee/regulate new construction.

Everyday Citizens Creating Change

Another way which zoning reform has advanced is through the formation of grassroots organizations within localities across the country. One such example is DesegregateCT, a volunteer organization in Connecticut led by a Mexican-American lawyer that pushes for zoning

reform in a state full of single-family, detached homes (Prevost, 2021). DesegregateCT staff conducts research on how zoning impacts the daily lives of Connecticut residents, and one of their main activities is attending municipal and state government meetings to discuss how zoning ordinances can be changed to be more sustainable and reduce racial inequality. One recent proposed initiative is for the state to force cities, counties, and towns to amend zoning codes to allow multi-family and dense housing construction near downtowns and public transportation centers. Amtrak is one service that is used to travel in-and-out of the CT suburbs and into NYC and New England. Building dense housing near train stations reduces the level of car usage needed and associated CO2 emissions. This would proliferate the use of efficient public transit, while making suburban life more equitable for lower income individuals. Another similar effort by grassroots organizations is from Gainesville YIMBY and the Florida Housing Coalition (FHC). They together pushed city council to adopt a reformed zoning law that allows for the construction of duplexes, triplexes, and multi-family homes in parts of the city that were previously zoned solely for single-family units (NLIHC, 2022). After seven hours of deliberation and presenting research at the meeting, they successfully persuaded attending citizens and city council members to amend its 2020 Housing Action Plan to allow multi-unit development. FHC legal director Kody Glazer commented “we hope Gainesville’s efforts to increase housing options will be a model for the rest of the state as cities and counties tackle local barriers to increasing the supply of affordable housing.” Critics on the council said that this would expand the range of off-campus housing for college kids in the hometown of University of Florida, which many citizens may find undesirable. Ultimately, the council was convinced that reducing the cost of housing, and providing more housing opportunities for low-income families was worth the potential downsides.

In Baltimore, a coalition of labor unions and community leaders formed the Free Your Voice organization in order to push zoning reform that combats the pollution of their local air and waterways (Fabricant, 2018). These reforms are often known as creating “green zones.” Between 2014 and 2016, Free Your Voice and other smaller entities successfully protested a proposed crude oil terminal in the Curtis Bay neighborhood of southern Baltimore. Next, organizers then fought to prevent the expansion of crude oil infrastructure in Baltimore by using local zoning codes to ban much fossil fuel infrastructure. It has been known for ages that Curtis Bay’s soils have dangerously high levels of oils, and that the air quality from burnt fossil fuels has caused respiratory problems for many residents. By instituting bans on toxic and dangerous land uses, cities can both improve public health and begin to address environmental injustices, as well as improve the quality and safety of existing affordable housing and increase property values for homeowners. City Solicitor Andre Davis vocally pushed for new legislation to ban the construction of crude oil terminals in the area (City of Baltimore, 2018). “These oil and gas companies knew for decades that their products would harm communities like ours, and we’re going to hold them accountable,” said Davis. “Baltimore’s residents, workers, and businesses shouldn’t have to pay for the damage knowingly caused by these companies.” With his help, Baltimore in 2018 adopted the Crude Oil Terminal Prohibition Ordinance which bans construction of new oil terminals in the Curtis Bay area, and creates emissions standards. After passage, Mayor Pugh stated "we will not be deterred from our responsibility to protect Baltimore and those of us who call it home." Hopefully, more cities can address their zoning code just like Baltimore did to implement restrictions on commercial, industrial, and agricultural practices that harm the health of local residents.

Conclusion

The zoning regulations that have long prevailed in America were implemented decades ago, sometimes with nefarious intentions, but usually without the foresight of how a growing and increasingly mobile population will have consequences on long-term livability and sustainability. Lawmakers have often proven to be either corrupted, inept, or sluggish at creating laws that will benefit the public. It takes action from outside coalitions of people with a care and a stake in the future. As seen, it may require the action of concerted professional engineers, urban planners, environmentalists, etc. who have a passion for sustainability to group together to influence politics. Perhaps, it can be “everyday” citizens who organize to vouch for their demands for a better future. Sometimes, even corporations can have incentive to push for sustainability through their products and services. With strength in numbers, political and economic roadblocks are no longer invincible, and we can engineer a more promising and exciting future for ourselves and generations to come.

Ultimately, we all want to have easy access between work, school, places of entertainment, friends, etc., and take comfort in knowing that our lifestyles aren't at a detriment to the planet we all share. There is still is much work to be done, as the biggest factors globally to the climate crisis are industrial practices that burn unfettered amounts of CO₂ into the air, and agricultural practices such as livestock farming that emit massive amounts of greenhouse gasses like methane. Legislative regulation on these industries is required, and a major hurdle is the financial lobbying power that businesses in these industries can wield against that. However, pressure can be put on the political class to do more for environmental sustainability just as the groups/organizations discussed before have done for urban sustainability.

References

- Barrie, T. (2023). Zoning Reform and Housing Choices. *Affordable Housing + Sustainable Communities Initiative at North Carolina State University*.
outreach.design.ncsu.edu/ah+sc/resources/white-papers/zoning-reform-and-housing-choices/#:~:text=Health%20and%20Well%2Dbeing,-Walkable%20communities%20that&text=Research%20has%20established%20that%20compact,support%20emotional%20and%20mental%20health.
- Brooks, A. (2022, June 29). Planners Can Lead the Zoning Reform Movement. *American Planning Association*.
www.planning.org/planning/2022/spring/planners-can-lead-the-zoning-reform-movement
- Burlington Electric Department (n.d.). Winooski One Hydro Plant.
www.burlingtonelectric.com/winooski-one/#:~:text=Winooski%20One%20is%20a%207.4,a%20historic%20timber%20crib%20dam.
- CalCCA (n.d.). Community Choice Aggregation (CCA): What is it? cal-cca.org/powered/
- Charly, Thomas, Foley, and Caulfield (2023, July). *Identifying Optimal Locations for Community Electric Vehicle Charging*. *Sustainable Cities and Society, Volume 94*.
- City of Baltimore (2018, July 20). Baltimore Takes On Fossil Fuel Companies to Protect Taxpayers from the Costs and Consequences of Climate Change.
mayor.baltimorecity.gov/news/press-releases/2018-07-20-baltimore-takes-fossil-fuel-companies-protect-taxpayers-costs-and
- City of Norfolk (2016). Vision 2100.
www.norfolk.gov/DocumentCenter/View/27768/Vision-2100---FINAL?bidId=

CNU (2020, Aug.). Congress For the New Urbanism. Enabling Better Places: A Zoning Guide for Vermont Neighborhoods.

www.cnu.org/sites/default/files/200729_Z4GN-Guide-web.pdf

DeRolph, McManamay, Morton, & Surendran Nair (n.d.). City Energysheds and Renewable Energy in the United States. Oak Ridge National Laboratory, Environmental Sciences Division. www.osti.gov/servlets/purl/1509579

Downeast Transit (n.d.). Downeast Transit System Information Home.

www.downeasttrans.org/index.html

Estep, T., and Coyne, A. (2019, March 19). Gwinnett's MARTA Referendum Has Failed. *Atlanta Journal-Constitution*.

www.ajc.com/news/local-govt--politics/gwinnett-marta-referendum-has-failed/fzmvZ0KPZAOzGw7rIL9NPJ/

Fabricant, N. (2018). The Environmental Justice Movement in South Baltimore. *New Politics*.

newpol.org/issue_post/environmental-justice-movement-south-baltimore/

Fairfax County, VA (n.d.). EV Charging for Common Interest Communities.

www.fairfaxcounty.gov/environment-energy-coordination/ev-charging-common-interest-communities

FTA (2009). Federal Transit Administration. Sustainable Transportation Case Study: Salt Lake City, Utah.

www.transit.dot.gov/sites/fta.dot.gov/files/2021-03/Utah-Transit-Authority-Case-Study.pdf

FTA (2010). Federal Transit Administration. Downeast Transportation and Island Explorer Livability Case Study.

www.transit.dot.gov/sites/fta.dot.gov/files/2021-03/Downeast.pdf

- Goldberg, D. (2023, Nov. 8). Zoning Innovation From Coast-to-Coast. *National Association of Realtors*.
www.nar.realtor/on-common-ground/zoning-innovation-from-coast-to-coast
- L.L. Bean (2022, April 26). Next Stop: A Cleaner Acadia (YouTube video).
www.youtube.com/watch?v=NqdPHA_gyDU
- MAPC (2014). Metropolitan Area Planning Council. Start a Community Choice Aggregation Program.
www.mapc.org/wp-content/uploads/2017/11/Start-a-Community-Choice-Aggregation-Program.pdf
- Meyersohn, N. (2023, Aug. 5). The Invisible Laws That Led to America’s Housing Crisis. *CNN*.
www.cnn.com/2023/08/05/business/single-family-zoning-laws/index.html#:~:text=Strict%20single%2Dfamily%20zoning%20regulations,opportunities%2C%20researchers%20and%20advocates%20say.
- Millman Land (2021, July 24). How Zoning Laws Can Help Reduce Pollution.
millmanland.com/industry-news/how-zoning-laws-can-reduce-pollution
- Moodie, A. (2017, Oct. 21). These Five US Towns Are Powered Entirely by Renewable Energy. *Huffington Post*.
www.huffpost.com/entry/american-cities-powered-by-renewable-energy_n_59ea2cbee4b0958c4681d32a
- NLIHC (2022, Aug. 29). National Low Income Housing Coalition. Gainesville City Council Acts to End Single-Family Zoning in College Town.
nlihc.org/resource/gainesville-city-council-acts-end-single-family-zoning-college-town
- Norris, M. (2023, March 20). Reshaping The City: Zoning for a More Equitable, Resilient, and Sustainable Future. *Urban Land*.
urbanland.uli.org/public/reshaping-the-city-zoning-for-a-more-equitable-resilient-and-sustainable-future

Odell, K. (2016, Oct. 28). Take a Ride on the ‘Tide-tanic’: You’re Paying for It. *Wall Street Journal*.

www.wsj.com/articles/take-a-ride-on-the-tide-tanic-youre-paying-for-it-1477694911

O’Shaughnessy, Heeter, Gattaciecceca, Sauer, Trumbull, & Chen (2019). Community Choice Aggregation: Challenges, Opportunities, and Impacts on Renewable Energy Markets. *National Renewable Energy Laboratory*.

www.nrel.gov/docs/fy19osti/72195.pdf

Prevost, L. (2021, Feb. 26). A Push For Zoning Reform in Connecticut. *New York Times*.

www.nytimes.com/2021/02/26/realestate/connecticut-zoning-reform.html

Rosevear, J. (2023, Sep. 19). EV Charging Needs Big Improvements Soon if the Auto Industry’s Transition is Going to Work. *CNBC*.

www.cnbc.com/amp/2023/09/19/ev-charging-industry-improvements.html

Sweet, Horton, Kopp, & Romanou (2017). Sea Level Rise. *Publications, Agencies, and Staff of the US Department of Commerce*, 581.

Thompson, W. (2019, Dec. 5). Can Zoning Reform Undo “50 Years of Bad Policy?”

Shareable. www.shareable.net/can-zoning-reform-undo-50-years-of-bad-policy

Tuss, A. (2023, Nov. 2). Herndon Resident Upset With HOA's Electric Vehicle Charging Station Restrictions. *NBC Washington*.

www.nbcwashington.com/news/local/transportation/herndon-resident-upset-with-hoa-electric-vehicle-charging-station-restrictions/3460899/

Velasco, G., and Cohen, O. (2022, March 2). Three Ways Zoning Can Advance Housing and Climate Justice. *Housing Matters*.

housingmatters.urban.org/articles/three-ways-zoning-can-advance-housing-and-climate-justice

Wilde, T.B. (2020). Smart Urban Governance in practice: A case study of Dutch smart city developments. *Utrecht University Student Theses Repository*.