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Beyond Brownfields Redevelopment: A Policy Framework for Regional Land Recycling Planning

Joseph Schilling
jschilling@urban.org

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**BEYOND BROWNFIELDS REDEVELOPMENT
A POLICY FRAMEWORK FOR REGIONAL LAND RECYCLING
PLANNING**

Joseph Schilling*

ABSTRACT

The fields of urban policy and urban planning lack a cohesive and comprehensive framework for recycling vacant and abandoned properties. Past and present efforts to repurpose vacant land and abandoned properties were often narrow responses driven primarily by economic redevelopment policies such as urban renewal of the 1950s & 1960s, deindustrialization of the 1970s & 1980s, and the public-private partnerships featured during the 1990s & 2000s. The 2008-2015 mortgage foreclosure crisis and Great Recession put the policy spotlight on how to address the widespread impacts from thousands of vacant and/or foreclosed homes that affected diverse markets and communities across the country. Even today, dozens of communities, especially those older industrial legacy cities, still have neighborhoods and districts with hundreds, even thousands of vacant homes. The COVID-19 Pandemic now presents policymakers with another socio-economic crisis that will dramatically impact our communities and its built environment. As communities begin the slow recovery process, they may confront waves of housing instability and business disruptions that could trigger significant increases in vacant homes and abandoned properties. This article outlines the core policy and program foundations for reclaiming vacant properties and abandoned buildings; identifies the policy and program innovations that can scale brownfields redevelopment to address challenges around equity, sustainability, and resilience; and provides a framework for a collaborative, cross agency, cross sector policy and planning framework that can address contemporary and future land recycling crises.

OVERVIEW

Brownfields redevelopment represents one of the more constant policy approaches to land recycling as hundreds of communities in the U.S. have leveraged millions of federal, tribal and state dollars to remediate environmental contamination and redevelop former industrial and commercial properties and other light-to-moderately polluted areas. Brownfields exist everywhere in our country from big cities and inner ring suburbs to small towns and rural communities. Given the reach and impacts from the U.S. Environmental Protection Agency's (EPA)

* Senior Policy and Research Associate, Urban Institute

Brownfields and Land Revitalization Program,¹ many local governments, nonprofits, and community-based organizations have extensive experience in reclaiming contaminated properties. Brownfields redevelopment represents perhaps the most successful and consistent urban regeneration policy over the course of four different and divergent federal administrations.

Brownfields redevelopment policy and practice remains mostly a project-by-project model. Private property owners, with assistance from local governments, leverage modest public sector investments and the catalytic powers of the private land development, real estate marketplace to revitalize individual properties that have strong redevelopment potential. For the large majority of individual brownfield sites, the financial numbers must pencil out. At the same time, local governments position brownfields as catalysts for neighborhood revitalization and city regeneration. Brownfields policy continues to incrementally evolve to now include companion programs and projects, such as workforce development/green jobs, urban greening and green infrastructure, healthfields, solar energy, and area wide planning. Increasingly, community development corporations, land banks, and other mission driven nonprofits are now leading brownfields redevelopment projects. Despite these relatively recent developments, EPA's Brownfields and Land Revitalization Program remains somewhat of a niche initiative when compared with the national visibility of other federal revitalization policies and programs, such as the recent tax incentives under Opportunity Zones. Looking towards the future, the Brownfields Movement could benefit from visionary political and policy leadership so that it can effectively scale the critical policy and programmatic linkages between redevelopment and revitalization to other emerging urban planning and policy movements such as sustainability, climate change, and equitable development.

Building on the author's 25 years of experience working at the intersection of brownfields, vacant property reclamation, and sustainability, this article seeks to establish a cohesive policy and planning framework for recycling and repurposing vacant properties, abandoned buildings and vacant urban/suburban land.² A more

¹ U.S Environmental Protection Agency, Overview of EPA's Brownfields Program, <https://www.epa.gov/brownfields/overview-epas-brownfields-program>

² As for focus for this special edition, many academics and practitioners are perhaps most familiar with Chris Nelson's research and writing that examines the planning and policy dimensions of how to address metropolitan development and growth, such as his expertise with urban containment, impact fees, infill development, smart growth policies, etc. From time-to-time Dr. Nelson's scholarship explored the drivers behind why some regions and cities grow and why others do not and whether metropolitan planning could catalyze city revitalization. (See Arthur C. Nelson and Raymond J. Burby. 2005. The Effect of Regional Smart Growth on Metropolitan Growth and Construction: A Preliminary Assessment. In Fritz W. Wagner, et al. eds, *Revitalizing*

robust framework for land recycling can help communities and the nation address future cycles of land and property abandonment driven by a range of more acute economic downturns, future market failures, and economic and social restructuring, such as our shift away from fossil fuels to green energy. Events of the past few years—the economic and social instability caused by the COVID-19 pandemic, the immediate demands for racial justice, and climate change’s intense acceleration of storms and natural disasters—demand a more comprehensive, coordinated, and strategic policy and planning framework for recycling land that is equitable, green, and resilient.

Starting with a brief overview of the Brownfields Policy Movement this article will: 1) outline the core policy and program foundations for reclaiming vacant properties and abandoned buildings; 2) identify the policy and program innovations that can scale brownfields redevelopment to address challenges around equity, sustainability and resilience; and 3) provide a framework for a collaborative, cross agency, cross sector policy and planning framework that can address contemporary and future land recycling crises.

EVOLUTION OF THE BROWNFIELDS POLICY MOVEMENT

Federal law now defines a brownfield site as “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.”³ Brownfields redevelopment intersects a wide range of legal and policy domains, starting with federal and state environmental laws supported by extensive technical assistance and government resources; hazardous waste policies; public health; municipal law and local government management; land use, real estate, redevelopment financing; etc. In similar fashion to smart growth, new urbanism, and sustainability, over the years, brownfields redevelopment evolved into a policy movement with its own complex web of laws and policies and network of agencies, actors, and organizations.⁴ As Director of Community and Economic Development for the International City/County Management Associations (ICMA) from 1997-2004, I managed three multi-year, multi-million dollar cooperative agreements from the

the City: Strategies to Contain Sprawl and Revive the Core. Birmingham, AL: M.E. Sharpe). The genesis for this article blends my policy and planning experience on the nuts and bolts of reclaiming vacant and abandoned properties with the concepts and insights from Chris Nelson’s extensive body of work on metropolitan planning and development that shaped the careers and work of many researchers and planners, including my own.

³ 2002 Brownfields Act 42 U.S.C. section 9601(39)(A).

⁴ Wood, Astrid. “Tracing policy movements: Methods for studying learning and policy circulation.” *Environment and Planning*, Vol 48(2) pgs. 391-406 (2017).

U.S. EPA's Brownfields and Land Revitalization Program Office that offered a front row seat in the development of the brownfields policies, programs and practice. In this section the article outlines three interdependent waves, each with its own suite of innovative policies and programs that collectively define the contours of the brownfields movement and its basic policy ecosystem.⁵

The First Wave —The Pilot Years (1995-2002)

As hundreds of U.S. industries relocated abroad, closed, or downsized during the 1970s and 1980s, they left behind thousands of abandoned factories and manufacturing plants that were caught in the legal liability web of the 1980 Superfund law.⁶ Superfund made the former owners and prospective purchasers of any contaminated property legally responsible to pay for the cleanup, even if the property might have little or no actual contamination. The redevelopment and real estate markets stigmatized these lightly contaminated "brownfield" properties by making them nearly impossible to sell or redevelop. As a result, the only viable alternative for many owners was to abandon the property, or at best fence it off with the hope the market might shift, or some new cleanup technology might make future redevelopment feasible.

In the early 1990s several states (e.g., Minnesota and Illinois followed by Ohio and California) adopted voluntary cleanup programs (VCP) for brownfields that provided prospective purchasers/developers with some assistance, guidance, and modest protections from legal liability.⁷ U.S. EPA's Superfund Program became intrigued about these state VCPs, so in 1993 EPA adopted a similar approach by awarding Cuyahoga County, Ohio (Cleveland) the first brownfields grant to assess/determine the level of contamination at an old factory site.⁸

⁵ Much of the academic literature focuses on the technical aspects of brownfields (e.g., cleanup liability, hazardous waste remediation, etc.) along with environmental justice, reuse alternatives along with financing, real estate, and economic development/redevelopment. One can also find more recent brownfields articles on greening, civic engagement, energy, and some on climate and sustainability. U.S. EPA, national and regional non-government organization, and professional associations have also produced dozens of policy and program reports, guidebook, etc. This article covers the basics of the brownfields policy movement.

⁶ Comprehensive Environmental Response Remediation, Compensation and Legal Liability Act (CERCLA) 42 U.S.C. Sec. S. 9601-9675.

⁷ State of the States on Brownfields Cleanup Programs. (1995) Office of Technology Assessment (OTA) U.S. Congress; available at <https://www.princeton.edu/~ota/disk1/1995/9540/9540.PDF>

⁸ The City of Chicago also launched programs and policies to redevelop brownfields with creative assistance from EPA's Region 5 brownfields team. See Stephanie Goldberg. "Let's Make A Deal: Cooperation, Not Litigation is the Newest Way to Cleanup Urban Wastelands." March 1997.

Although language in the Superfund law still made past and present property owners and prospective purchasers legally responsible to pay for the cleanup, the state VCPs and the new U.S. EPA brownfields pilot assessment grant program provided resources to help local governments determine the level of contamination, develop a cleanup plan, and negotiate the release of legal liability for that particular site. The policy goal was to find creative ways of working around Superfund's strict rules to encourage, catalyze brownfields cleanup and reuse as these sites had become major eyesores and barriers to the rebirth of cities throughout the country. Local government officials, especially mayors, were applying political pressure by testifying in Congress and issuing reports about the problems caused by these vacant, abandoned, and contaminated properties to their communities' revitalization efforts. From these initial program experiments, the U.S. EPA launched its Brownfields Pilot Assessment Grant Program with 22 new grants to local governments in 1995 and 36 additional grants in 1996. With the awarding of these early grants came the birth of the Brownfields Policy Movement.

Over the next seven years, the U.S. EPA developed companion grant programs that moved beyond the initial assessment to include clean up revolving loan funds, environmental remediation workforce training grants, environmental justice community grants, and the Brownfields Showcase Communities Initiative.⁹ Instead of its traditional environmental regulatory role, EPA's Brownfields and Land Revitalization Program developed a more cooperative, collaborative form of federalism by providing technical assistance and resources to state and local governments.¹⁰ In order to build the policy base and document the impact of its initial investments, U.S. EPA entered into a series of cooperative agreements with state and local governments associations (U.S. Conference of Mayors, International City/County Management Association, International Economic Development Council, Association of State and Territorial Solid Waste Administrators, etc.) and nonprofits (e.g., California Center for Land Recycling, Groundwork USA, Delta Institute, etc.) that together provided technical assistance to local governments and community based organizations, documented best practices, and convened trainings and workshops, etc. The EPA's Brownfields program devoted substantial

American Bar Association Journal. Vol. 83, pgs. 42-46. See also <https://www.epa.gov/brownfields/brownfields-and-land-revitalization-program-history>

⁹ Brownfields Blueprints—A Study of the Showcase Communities Initiative. June 2001. International City/County Management Association.

¹⁰ During this wave, state brownfields programs also grew and came of age. State VCPs in California, Ohio, Pennsylvania, Wisconsin, and Minnesota were recognized as leaders at the time. Several of these states also aligned their cleanup policies with relevant economic development resources and incentives to catalyze brownfields redevelopment.

energy and resources to building a national network of state and local policymakers, practitioners, and researchers. Part of this network also included representatives from brownfields consulting and development industry comprised of private sector companies that could undertake the technical cleanup and redevelopment work necessary for successful reuse of brownfields. Starting with the Pittsburgh Conference in 1996, a signature activity of the Brownfields Movement remains the semi-annual U.S. EPA sponsored Brownfields Conference where thousands of local government officials, private developers, consultants, and nonprofits come together for 3-4 days along with U.S. EPA and other federal agency staff to share innovative approaches, model practices, and collaboratively problem solve.¹¹ All of these first wave policy and program innovations solidified the movement's policy foundation.

The Second Wave—Institutionalizing Brownfields Redevelopment

Many of the first wave policy and program innovations were done through EPA's existing budgets and administrative authority. By establishing the policy and program infrastructure and cultivating a national network of brownfields policymakers, practitioners, and researchers, EPA and its partners helped create political momentum in Congress and the new Bush administration to codify the brownfields program. The Brownfields Act of 2002¹² (BFs Act) included the first federal statutory definition of what constitutes a brownfields and expanded it to include contamination by petroleum/petroleum products, controlled substances, and mine-scarred lands. With respect to federalism, a core element of its success, the BFs Act solidified the role of tribal and state governments (typically the state environmental regulatory agency) as a full-fledged partner by formally recognizing state voluntary cleanup programs that executed MOUs with EPA and by restricting federal enforcement actions to sites legitimately part of approved state programs. The BFs Act also authorized grants to the state and tribal governments to undertake response actions along with developing and maintaining inventories/registries of properties that had participated in the state VCP.

¹¹ ICMA, National Brownfields Training Conference, <https://icma.org/programs-and-projects/national-brownfields-training-conference>

¹² The Small Business Liability Relief and Brownfields Revitalization Act (Pub .L No. 107-118, 115 stat. 2356) was enacted on January 11, 2002. It amended the Superfund law by providing funds to assess and clean up brownfields; clarified CERCLA liability protections; and enhanced state and tribal response programs. Other related laws and regulations impact brownfields cleanup and reuse through financial incentives and regulatory requirements. <https://www.epa.gov/brownfields/summary-small-business-liability-relief-and-brownfields-revitalization-act>

One of the BFs Act's most important accomplishments was its authorization of EPA's Brownfields Program and its many local government grants and technical assistance programs for assessment and cleanup.¹³ The BFs Act expanded the eligible entities for brownfields funding (e.g., land clearance authorities, regional councils, redevelopment agencies and other quasi-governmental entities created by state and local government, etc.) and clarified that grants could be used to inventory, characterize, assess and conduct planning at individual brownfields sites.

Other key policy goals were imposing limits on Superfund liability for prospective purchasers, continuous property owners and clarifying the responsibilities of innocent purchasers to investigate the contamination (known as the "All Appropriate Inquiry Rule").¹⁴ Small businesses were also given greater legal protections from cleanup liability along with generators for municipal solid waste. These statutory provisions authorizing relief from Superfund illustrate the depth and breadth of Superfund and how they inhibited the reuse and redevelopment of brownfields.

Third Wave —The Era of Land Revitalization (2006-2019)

The authorization of the BFs Act paved the way for EPA's Brownfields and Land Revitalization Program to branch out, explore and expand its range of brownfields applications and strategies. In many ways this third wave elevated reuse and repurposing of brownfields properties as the primary policy driver with less emphasis on the technical engineering, financing, and legal requirements of environmental assessment and cleanup. The second wave's codification of the cleanup and liability rules established a firm policy and legal foundation that in some ways enabled and empowered this era of land revitalization for EPA's Brownfields Program and the movement at large.

During this same time period, issues such as sustainability, urban greening, smart growth, and even the early hints of climate change began to arrive on the federal, state, and local government policy stages. In 2009, the Obama administration ushered in eight years of cross agency collaborations elevating and

¹³ While the 2002 Act authorized a total of \$250 million per year for brownfields assessment and clean-up (including brownfield with petroleum), the actual amount appropriated by Congress has always been less than this statutory ceiling. For almost 20 years Congress did not give EPA's brownfields program the full amount authorized in the original 2002 BFs Act until the 2022 Infrastructure Investment and Jobs Act (IIJA).

¹⁴ The 2002 Act requires purchasers of property to conduct an 'all appropriate inquiry' (AAI) to investigate past site activities, prior to acquiring a brownfield, if they want to assert a new Prospective Purchaser defense to Superfund liability. Through a series of working groups and advisory councils, EPA worked with brownfields stakeholders nationwide to establish AAI standards and procedures. The AAI Final Rule was adopted on November 1, 2006).

piloting a range of sustainability and urban regeneration policies and programs, such as the Partnership for Sustainable Communities,¹⁵ the Sustainable Communities Initiative,¹⁶ and the Strong Cities, Strong Communities Initiative and Interagency Task Force.¹⁷ These and other federal led initiatives helped build and expand the capacities of regional and local governments by providing technical assistance, embedding federal employees, and investing in a network of regional and local sustainability plans.¹⁸

During this wave, and continuing today, the Brownfields program made significant policy and programmatic investments to advance the scope of brownfields practice and reuse applications under the umbrella of “land revitalization.” At the same time EPA never lost sight that local governments and property owner/developer were the lead actors in control of reuse planning process that determines the land reuse options which still drives the feasibility and eventual success of brownfields redevelopment.

During the next 10+ years the Brownfields program launched several new pilot grants that infused different dimensions of smart growth, infill development and sustainability¹⁹ into the generic land reutilization regulatory and policy framework.²⁰ EPA’s brownfields sustainability pilots tested a range of (at the time) cutting edge reuse strategies, such as green infrastructure,²¹ technical and design plans for solar panel and renewable energy placement on contaminated lands,

¹⁵ U.S. Environmental Protection Agency, Partnership for Sustainable Communities: Five Years of Learning from Communities and Coordinating Federal Investments, <https://archive.epa.gov/epa/smartgrowth/partnership-sustainable-communities-five-years-learning-communities-and-coordinating.html>

¹⁶ HUD Exchange, Sustainable Communities Library, <https://www.hudexchange.info/programs/sci/>

¹⁷ Urban Institute, Strong Cities, Strong Communities, <https://www.urban.org/policy-centers/research-action-lab/projects/strong-cities-strong-communities>

¹⁸ While the Brownfields Program Office was involved with these initiatives, other federal agencies and other offices within EPA took on the leadership role.

¹⁹ U.S. Environmental Protection Agency, Building a Sustainable Future, A Report on the Environmental Protection Agency’s Brownfields Sustainability Pilots, October 2009, https://www.epa.gov/sites/default/files/2015-09/documents/sustain_report_web_final.pdf

²⁰ U.S. Environmental Protection Agency, Land Revitalization Toolkit, <https://www.epa.gov/land-revitalization/land-revitalization-toolkit>

²¹ WEF, EPA Releases Guide to Green Infrastructure at Brownfield Sites, <https://stormwater.wef.org/2013/10/epa-releases-guide-green-infrastructure-brownfield-sites/>

resilience to assist long-term recovery from natural disasters,²² community engagement in land reutilization site plans, urban agriculture, and as part of the federal government's response to revitalizing auto sector communities. EPA staff and/or contractors published dozens of fact sheets, case studies and reports to document and diffuse these model practices through the brownfields network so that other local governments and their partners could apply and adapt these models to their communities.

A couple of the initiatives involved close partnerships with other EPA program offices and/or other federal agencies. *Healthfields*, for example, is the redevelopment of brownfields for community health centers and health promotion through revitalization (e.g., urban agriculture to address food insecurity or parks, trails and bikeways that promote active living.)²³ The Brownfields Program undertook a series of stakeholder meetings in 2015 that informed its launch of the Climate Smart Brownfields initiative.²⁴ With renewed interest in climate change, in 2021 the Brownfields program office released its climate smart manual with details on how to leverage the redevelopment and reuse of brownfields to facilitate mitigation of or adaption to climate change.²⁵ *Brightfields* was an early agency partnership with Department of Energy (DOE) to reclaim brownfields for renewable energy generation (primarily solar and wind). Through a subsequent DOE grant, ICMA and its partners provided grants and technical assistance to a cohort of communities for their brownfields- to-solar-fields projects.²⁶ Recently, the Biden administration launched a renewed and expanded focus on brownfields and energy regeneration through its Re-Powering Initiative.²⁷ Despite all of these

²²https://www.epa.gov/sites/default/files/201601/documents/bf_revitalization_climate_vulnerable_areas_012616_508_v2_web.pdf

²³ U.S. Environmental Protection Agency, *Brownfields to Healthfields*, March 25, 2016, https://www.epa.gov/sites/default/files/2016-03/documents/ej_iwg_rev_mgb.pdf

²⁴ U.S. Environmental Protection Agency, *Climate Smart Brownfields, Launching the Next Generation of Brownfield Revitalization*, <https://19january2017snapshot.epa.gov/sites/production/files/2015-10/documents/climate-smart-growth.pdf>

²⁵ U.S. Environmental Protection Agency, *Climate Smart Brownfields Manual*, June 2021, https://www.epa.gov/sites/default/files/2021-06/documents/final_climate_smart_brownfields_manual_6-10-21_508_complaint.pdf

²⁶ Solsmart, *Transforming Brownfields to “Brightfields” with Solar*, <https://solsmart.org/news/transforming-brownfields-to-brightfields-with-solar/>

²⁷ Center for Creative Land Recycling, *U.S. EPA Launches New and Improved RE-Powering Mapper Tool*, <https://oldsite.cclr.org/us-epa-launches-new-improved-re-powering-mapper-tool>

program resources and innovative reuse applications, housing and infill development remains a missing piece of the brownfields program portfolio.²⁸

In 2010, the EPA launched a series of pilot grants with a focus on coordinating the assessment and cleanup of multiple brownfields sites within a defined district, neighborhood, or corridor. As part of the Area-Wide Planning Grant Pilot (2010-2016) the EPA managed 23 grantees to test different ways that communities could prioritize and assess multiple brownfields sites and better understand the interrelationship of local markets, community dynamics, and environmental cleanup. Eligible activities under the grants included community engagement, market analysis, coordination with existing community plans, infrastructure analysis, inventory and mapping, and revitalization site planning and implementation.²⁹ The Area Wide pilot program elevated planning as part of the Brownfields program and provided more explicit guidance on how grantees could use their funds to create a corridor or district plan that involved multiple brownfield sites.³⁰ By having a cohort of planning grantees, the local communities (local governments and community development corporations) could compare notes and approaches, in essence creating an informal community of practice. These revitalization plans set forth unifying visions for these areas to guide the individual redevelopment of these multiple sites and strategies. Based on the early success of the Area Wide pilots, the 2018 reauthorization of the 2002 BFs Act (The Brownfields Utilization, Investment and Local Development (BUILD) Act)³¹ authorized a new category of brownfields grants—the Multipurpose grant—that

²⁸ Exploring the political, policy, legal and technical barriers that prevent more housing development on brownfields (say compared with countries in Europe) would require more analysis and exploration than what we have time for in this article, but generally see, Greenberg M. (2002). Should housing be built on former brownfield sites? *American Journal of Public Health*, 92(5), 703–705 <https://doi.org/10.2105/ajph.92.5.703>; and <https://icma.org/articles/pm-magazine/cleaning-house-developing-brownfields-affordable-housing>

²⁹ U.S. Environmental Protection Agency, Brownfields Area-Wide Planning Program, July 2012, https://www.epa.gov/sites/default/files/2015-09/documents/awp-factsheet-july-2012_0.pdf. U.S. Environmental Protection Agency, Brownfields Area-Wide Planning Pilots, Ideas and Lessons Learned for Communities, June 2014, https://www.epa.gov/sites/default/files/2015-09/documents/epa_oblr_awp_report_v4_508.pdf

³⁰ Important to note that under Section 104(k)(2)(A) of the 2002 BFs Act grantees did have authority under their assessment grants to undertake planning activities, but for the most part grantees used these funds for assessment activities.

³¹ BUILD Act of 2018 also reinforced EPA’s work on energy efficiency and renewable energy generation by making it one of the newer considerations for brownfields grant selection along with attention to flood plains and flood risk areas. <https://www.epa.gov/brownfields/brownfields-laws-and-regulations>

allows the grantee to combine site assessments, cleanup activities and develop an overall revitalization plan for the target area. Planning is still eligible under the assessment grants, but the new multipurpose grants offer perhaps a more direct avenue for combining planning, assessment, and cleanup activities.³² While the law gives grantees new levels of flexibility, it remains to be seen how many of the current multiple purpose grantees will use those resources for revitalization planning. A standalone area wide planning grant program, however, offers opportunities for cohort learning on different revitalization planning strategies and could further strengthen brownfields planning capacities.

TRANSFORMING BROWNFIELDS REDEVELOPMENT POLICY THROUGH LAND RECYCLING + REGIONAL PLANNING

The next wave of brownfields policy and program innovation must move beyond its primary project-by-project approach by expanding its scale and scope towards a land recycling model. A land recycling framework would recalibrate and scale brownfields redevelopment in a more holistic and integrated way so that communities can reuse and repurpose brownfields along with other types of vacant properties in a more equitable, resilient, and sustainable way.

Land recycling will soon become a national priority. Climate change is already affecting how we develop and use land and buildings. With more intense storms, urban heat, fires, droughts, pests/vectors, and flooding—along with impacts from immigration and deep carbonization—many existing land uses and buildings will become obsolete, uninhabitable, vacant and abandoned. One could envision a future with scarcities of safe, buildable land and habitable structures which could lead to dramatic socio-economic changes and perhaps real estate market failures. Such development limitations would cause additional pressures on affordable housing and housing stability which could escalate as the real estate, design, and land development industries scramble to create new types of climate safe housing; thus, reclaiming brownfields and other vacant and abandoned properties could be significant in mitigating land shortages for housing. As we are learning from the COVID-19 Pandemic, these types of monumental shifts will exacerbate existing

³² Important to acknowledge the limitations of planning and its history in many brownfields communities that have been the subject of failed revitalization and redevelopment planning efforts, such as urban renewal. Planning without the political commitment and resources to implement the plan and actualize the regenerative goals for all community members will only raise expectations and further distrust of the actors and planning, etc. Planning processes must elevate community priorities and voices and empower community members to become stewards and beneficiaries of the brownfields redevelopment. Several of these and other insights are presented in a 2021 three-part Smart Growth Network webinar series on community planning. See https://smartgrowth.org/learning-from-and-leaning-on-local-leaders-to-revitalize-african-american-neighborhoods/?utm_medium=email&utm_source=govdelivery&utm_term=#session-03

health disparities and the economic inequalities for those communities of color most vulnerable to climate change. Given the enormity of these and other contemporary policy challenges, a metropolitan planning framework offers the optimum policy scale and pathway for launching a land recycling framework and the next wave of Brownfields policy and programmatic innovation. Below we outline a policy case for expanding the policy parameters of brownfields policies and programs to include land recycling and regional planning.

Preliminary Scope of Land Recycling

In many sectors of the United States, land recycling appears synonymous with brownfields redevelopment, but in Europe land recycling encompasses a broader range of vacant and abandoned properties, buildings, and infrastructure. Land recycling must expand and move upstream to include underused, underperforming and/or surplus properties such as parking lots, strip commercial, and big box stores that have obsolete uses and structures. Land eligible for recycling inherently means the property no longer effectively, equitably and safely performs or functions in the way it was intended to.³³ As result of shifts in markets and society the property (land and buildings) becomes vacant and/or abandoned for sustained periods of time. Temporary or seasonable vacancy may not necessarily require recycling, but one must always consider the underlying macro and micro economic drivers within a region, city, and neighborhood that cause chronic property vacancy and abandonment.

After setting the parameters of land recycling (e.g., defining the term, its characteristics, and types of land in need of recycling, etc.), federal, state, and local policymakers in collaboration with nonprofit organizations, community-based organizations, and the private sector must build consensus around the policy goals and objectives for land recycling. Economic development and removal/mitigation of environmental contamination have been the primary policy drivers for the U.S. brownfields redevelopment policy and program. In several European countries, land recycling includes the replacement and revitalization of grey infrastructure (roads, pipes, dams, tracks, etc.) and the management of green space and natural land. Europe also seems to make a more direct policy linkage of land recycling as a growth management strategy.³⁴ From today's vantage point, the overarching policy goal behind our initial framing of land recycling is to help communities

³³ Adaptive reuse of buildings may not quite fit this initial definition of land recycling because the land itself is not transformed but just the buildings.

³⁴ European Environment Agency, Indicator Assessment, Land Recycling and Densification, <https://www.eea.europa.eu/data-and-maps/indicators/land-recycling-and-densification/assessment-1>

prepare for new waves of property abandonment so they can become more equitable, resilient, and sustainable.

Incubate Land Recycling Policies and Programs within Brownfields

Brownfields redevelopment policies and programs provide fertile ground to cultivate this policy transformation to land recycling and achieve the policy goals mentioned above. As the earlier sections outline, brownfields already have a strong policy and programmatic foundation and a robust national network of partners and intermediaries that could easily expand to include land recycling policies and practices. With race, equity, and inclusion serving as critical cornerstones, this land recycling model can leverage brownfields program's long history with the environmental justice (EJ) movement. Brownfields and environmental justice are inextricably linked through decades of coordinated policy and programmatic actions.³⁵ Federal, state, and local government policymakers, nonprofit and community-based organizations, and EJ advocates and coalitions can build upon and refine this existing policy infrastructure for elevating community voices, needs, and priorities in the context of this new land recycling model. For example, they could take more deliberate policy actions to address the location and relocation of industrial uses within and near neighborhoods of color. As a condition for using any public brownfields grants or resources, communities could be required to conduct a health equity impact assessment that would document existing environmental injustices (e.g., property conditions and land uses, etc.), recommend strategies to mitigate/address, and assess potential equity and health benefits from proposed reuses of the brownfields.

Brownfields redevelopment of former industrial sites offer ideal land recycling opportunities for addressing climate change across the country through the generation of renewable energy (wind and solar) that can accelerate decarbonization efforts and green infrastructure/urban greening strategies to address climate impacts from flooding and urban heat islands. Perhaps the more pressing challenge on the horizon is preparing for the remediation of fossil fuel sites from gas stations and refineries to aging power plants and coal mines. Land recycling plans and inventories could help map these future brownfields now.

In addition to climate and equity, existing brownfields job training programs and workforce development programs for environmental remediation and maintenance could expand to cover a broader range of sustainability infrastructure and green jobs. As communities transition away from fossil fuel extraction,

³⁵ U.S. EPA's Office of Environmental Justice, the primary federal agency that operates at the intersection of land recycling and social, racial, and economic justice, evolved from early initiatives, such as the EJ caucuses, within EPA's Brownfields program.

generation, and use, the federal government could leverage EPA's experience with brownfields job training to support energy dependent communities as they undergo the necessary economic and labor transformations away from fossil fuel industries. In collaboration with other federal agencies, such as Labor and the Economic Development Administration, the brownfields job training activities could focus on green jobs involved with land recycling and the transformation of brownfields to support emerging green technologies and businesses. Now is the time to identify those communities and begin the necessary steps to plan, prepare and put new "green" brownfields work force policies and programs in place.

Regional Planning Framework

Regional planning provides the optimum framework to operationalize these and other related policy goals and to position the brownfields program for the necessary shift to land recycling. For years, planning has been somewhat of a mystery within current federal and state brownfields policy. Historically, the Superfund law seems to restrict U.S. EPA's use of resources and technical assistance to activities involving only the environmental assessment and cleanup. At different times EPA's Brownfields program stretched its cleanup authority by expanding the scope of its grants and resources to include revitalization site planning. Brownfield community-wide assessments, and later the Area Wide Planning grant pilots, did provide local governments with greater flexibility to inventory and assess multiple brownfields sites within a defined geography (e.g., district, corridor, etc.) and to develop individual site-specific reutilization plans. Planning activities that focus on revitalization, such as community involvement, feasibility studies, and reuse options for the site "or area" are now eligible under the new Multi-purpose Brownfields grants, which could open the policy and program door to funding more revitalization and land development planning for brownfields.³⁶

Local redevelopment plans also have a sordid history given how policymakers used urban renewal to separate and destroy neighborhoods of color. Many localities still have redevelopment agencies that can create plans for revitalizing designated districts or neighborhoods. While some states have imposed limits on their powers, such as the ability to use eminent domain, local economic development agencies can still bring to bear complementary resources and actions

³⁶ U.S. Environmental Protection Agency, Plan for Brownfields Redevelopment Success, Brownfields Revitalization Plan Fact Sheet, November 2018
https://www.epa.gov/sites/default/files/2018-11/documents/brownfields_revitalization_plan_fact_sheet_11-15-18_1.pdf

under the umbrella of their redevelopment planning powers.³⁷ What is more difficult to find, however, are revitalization/land reutilization plans that focus on feature brownfields or the reclamation of multiple vacant and abandoned properties. A few local planning departments may have land use plans with special sections or elements that focus on brownfields redevelopment.³⁸ What might be more likely are district or corridor scale revitalization plans that involve or include brownfields.³⁹ New York's Brownfields Opportunity Area program offers a good model for the development of area wide brownfields redevelopments plans.⁴⁰

The current system of brownfields revitalization site planning and redevelopment planning still happens project by project, development by development. Planning for land recycling will demand a much broader scope and scale to effectively prepare for and respond to the potential explosion of property abandonment and align policies and programs that can address the pressing policy priorities of climate equity, resilience, and environmental justice. Adopting regional brownfields plans would facilitate the more strategic and effective use of brownfields resources by helping align regional market dynamics and regional infrastructure investments and focusing these and other redevelopment resources on the redevelopment and reclamation of brownfields and vacant properties. Such a regional planning approach could also deepen the policy linkages between federal and state environmental regulations and redevelopment and revitalization resources with local land use plans and decisions. Regional planning processes for brownfields redevelopment could also serve as the policy bridge for expanding

³⁷ Redevelopment planning, programs, and projects, however, almost exclusively depend on market factors and public-private partnerships to make it work. While many redevelopment authorities have successfully done brownfields redevelopment projects, it remains whether they could expand the scale and scope to do land recycling.

³⁸ These plans take on many different formats, scales and types. One example is a 2006 brownfields reuse plan by the City of Roanoke, Virginia that focused on five neighborhood corridors. <https://www.roanokeva.gov/DocumentCenter/View/1300/City-wide-Brownfield-Redevelopment-Plan>

³⁹ The inventory, assessment and redevelopment/reuse of brownfields were at the center of the City of Indianapolis' Smart Growth Redevelopment District Plan that in some ways served as a prototype for EPA's Area Wide Planning grant pilot. <https://www.smartcitiesdive.com/ex/sustainablecitiescollective/can-indy%E2%80%99s-smart-growth-district-become-green-revitalization-model-part-2-challeng/8433/>; see also, <https://archive.epa.gov/region5/sustainable/web/html/indianapolis.html>

⁴⁰ New York's Brownfield Cleanup Program Marks Successful Year, Niagara Frontier Publications, January, 27, 2021 <https://www.wnypapers.com/news/article/current/2021/01/27/145032/new-yorks-brownfield-cleanup-program-marks-successful-year>

brownfields redevelopment across diverse metropolitan scales—rural, exurban, suburban, urban, small cities and towns, etc.—and for piloting the land recycling approach set forth above. The regional or metropolitan scale also becomes optimal to address complex market, socio economic, and environmental impacts that are involved with widespread property vacancy and abandonment, especially for smaller and rural municipalities that might not have the market pressure or brownfields redevelopment capacity compared to large and mid-sized cities.

THE NATIONAL BROWNFIELDS REGIONAL PLANNING ACT (BFs RPA)— ESTABLISHING THE POLICY INFRASTRUCTURE FOR LAND RECYCLING

Building on the current policy and programmatic foundations of the Brownfields Movement, this article outlines four interdependent components that would establish the policy infrastructure for recycling vacant, abandoned and underused land and buildings, including brownfields.⁴¹ These actions taken together will not only scale and ignite the next wave of Brownfields policy innovations, but also help communities mitigate and adapt to the effects of climate change and provide the opportunity for sustainable equitable development going forward.

Craft a National Strategy for Land Recycling

A critical step in the transformation of brownfields to land recycling is the alignment of federal, state, and local policies and programs. Building on past efforts (e.g., the National Brownfields Partnership Action Agenda),⁴² EPA should lead the development of a national strategy for land recycling in collaboration with those federal agencies that have some authority, oversight, or involvement with vacant and abandoned properties. The process would likely involve an internal interagency working group and external advisory council with state and local government officials along with relevant NGOs (non-government organizations) representing

⁴¹ One immediate concern is how could the federal government pay for this transformation to land recycling. The 2022 Infrastructure Investment and Jobs Act (IIJA) gave EPA \$1.5 billion that significantly expands resources across all of its core brownfield grant programs, including \$110 million in targeted technical assistance. https://www.epa.gov/system/files/documents/2022-03/bil_brownfields_fy22-fy23-draft-plan.pdf. EPA should leverage this one time investment to design and pilot a land recycling approach. Going forward Congress must continue its support by annually appropriating at least the total amount established in the 2002 BFs Act and 2018 BUILD Act, something that it has never done until this year.

⁴² Other examples of interagency working groups and councils relevant to brownfield redevelopment, environmental justice and land recycling include: <https://www.epa.gov/environmentaljustice/federal-interagency-working-group-environmental-justice-ej-iwg>; the White House Interagency Council on Environmental Justice (<https://www.energy.gov/lm/white-house-environmental-justice-interagency-council-resources>);

public, private, and community-based groups involved with brownfields redevelopment and vacant property reclamation.

A national strategy would result in a consensus-based definition of land recycling along with a series of core principles, goals, and specific recommendations on policy and program actions that government agencies/actors and their nonprofit and private sector partners should/must take to adopt and implement a holistic land recycling approach. The national strategy should include recommendations for federal legal and policy changes along with a multi-year blueprint for budget appropriations. The national strategy would cover all types of vacant and abandoned properties. Perhaps, start with brownfields as the initial test case and then expand to include vacant homes⁴³ caused by property tax and mortgage foreclosure, vacant and underused commercial/retail properties, including those in bankruptcy and properties driven by natural disasters as well as future economic downturns.

With respect to the federal government, the national strategy would empower EPA to convene a federal agency working group to inventory, assess, and coordinate federal policies that touch upon recycling of land/buildings and vacant properties.⁴⁴ Relevant federal agencies and regulatory roles might include Treasury, Housing and Urban Development (HUD), the Economic Development Administration (EDA), U.S. Department of Agriculture and its Rural Development Agency and Farm Bureau along with the Government Security Enterprises (GSEs) who are involved with vacant and foreclosed homes. Federal agencies such as FEMA and NOAA have some limited responsibility related to vacant and/or abandoned properties caused by natural disasters and with climate change intensifying federal, state, and local resilience plans should coordinate their strategies for managing vacant properties.

As the country transitions away from fossil fuels, it will be imperative to have a land recycling strategy in place. Currently the Biden administration and Department of Energy⁴⁵ are leading an interagency working group to help coal

⁴³ Noted vacant property expert Alan Mallach documents the continuing impacts and explains this phenomenon of hyper vacancy in his 2018 report for the Lincoln Institute of Land Policy, *The Empty House Next Door—Understanding and Reducing Vacancy and Hyper Vacancy in the US*. <https://www.lincolnst.edu/publications/policy-focus-reports/empty-house-next-door>

⁴⁴ Another consideration for defining the scope of national strategy is whether to include vacant or surplus properties owned by the government itself (federal, state, or local). The recycling of public vacant properties can many times act as a catalyst for corresponding actions by the marketplace.

⁴⁵ For the past 25+ years DOE's long-term stewardship responsibilities have involved the management of several former DOE sites in collaboration with surrounding/adjacent communities that could be instructive with the transition of privately owned fossil fuel properties as not ever

communities start this critical transition.⁴⁶ Any policy and program recommendations should outline the federal role on how to best inventory, assess and repurpose shuttered coal mines, power plants and other fossil fuel sites made obsolete in the country's fight against climate change. Although it's been many years since the Department of Defense closed former military bases by exercising its now expired authority through the Base Realignment and Closure Act (BRAC), the process and lessons from chartering Local Redevelopment Authorities (LRAs) offer an intriguing model that could be adapted and applied for vacant energy sites whether they are owned by quasi-governmental entities or private industry.⁴⁷

Given all of the independent federal laws and agency rules, let alone case law, such a comprehensive land recycling definition and scope might seem impossible to craft and then approve. A good place to start is by conducting an inventory of these diverse and disconnected governmental rules and practices and then put in place processes and procedures for vertical and horizontal alignment and coordination across these governmental entities/agencies. As difficult as it might be, crafting a national strategy presents the rare opportunity to develop standard practices and operating procedure for land recycling/vacant property reclamation. We will need to have them in place in order to prepare for dramatic shifts caused by climate change.

The underlying foundation for this national strategy will require federal agencies to effectively apply the principles and practices of collaborative federalism by engaging multiple levels of government along with cross sector partnerships with nonprofits, philanthropy and private sector development, real estate, and land use organizations and actors—not dramatically different than what the brownfields policy movement already has in place. Regional land recycling plans would serve as the cornerstone for implementing the national strategy by establishing the basic legal and policy parameters and intergovernmental relationships and roles between and among the federal government/agencies and regional and local governments. Based on the guidance from the national strategy,

site will host solar or wind farms. See generally the Energy Communities Alliance at <http://www.energyca.org/>

⁴⁶ Readout of the Interagency Working Group on Coal and Power Plant Communities Meeting for Economic Growth that Benefits Everybody, The White House, September 27, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/09/27/readout-of-the-interagency-working-group-on-coal-and-power-plant-communities-meeting-for-economic-growth-that-benefits-everybody/>

⁴⁷ U.S. Government Accountability Office, *Military Bases: Opportunities Exist to Improve Future Base Realignment and Closure Rounds*, GAO-13-149, March 7, 2013, <https://www.gao.gov/products/gao-13-149>

regional and local governments would be incentivized to develop and follow the regional land recycling plans as preconditions for using any source of government funding for their brownfields redevelopment or vacant property reclamation program or project.

When it comes to collaborative federalism, two potential objections might arise. First, the absence of any involvement (at least as we envision) for the state governments. State and tribal governments play critical roles in the success of the brownfields policy movement, and they should have some coordinating function, but we see tremendous policy efficiencies and perhaps even political advantages for having the federal government directly fund regional entities. Second, the long-standing principles of the federal government respecting local government autonomy over land use planning and land development decisions.⁴⁸ Note the regional plans, as set forth in this initial national strategy, would not usurp local land use prerogatives, but merely encourage consistency with the regional plans as a precondition to the use of federal, state, and local government funds in the land recycling effort.

Develop Regional Land Recycling Plans

If the national strategy sets the vision and the overarching policy goals, the regional land recycling plans would apply them to the socio-economic and environmental context of each region. Although policymakers and academics have been advocating for more robust regional land use/land development planning for decades,⁴⁹ a strong regional planning policy and planning infrastructure exists in many states focusing more on regional infrastructure (e.g., transportation, water, and energy) and less on land use and development.⁵⁰ Recent trends in regional planning covering such topics as environment/natural resources, water, and sustainability illustrate the importance of cross sector, cross agency collaborations and elevate the importance of equity, community voice, and the public's role and responsibilities.⁵¹ Lessons from the regional plans supported by HUD's 2010-2016 Sustainable Communities Initiative provide a range of diverse plans and

⁴⁸ Jerold S. Kayden, National Land-Use Planning in America: Something Whose Time Has Never Come, 3 WASH. U. J. L. & POL'Y 445 (2000), https://openscholarship.wustl.edu/law_journal_law_policy/vol3/iss1/18

⁴⁹ Kathryn A. Foster. 2010. Challenges ahead for U.S. regional planning governance. *The Town Planning Review*. Vol. 81, No. 5, Planning Skills and Learning for Sustainable Communities, pp. 485-503.

⁵⁰ *Regional Planning in America—Practice and Prospect*. 2011. Edited by Ethan Seltzer and Armando Carbonell. Lincoln Institute of Land Policy.

⁵¹ Rocky Piro and Robert Leiter, Editors with Sharon Rooney. 2017. *Emerging Trends in Regional Planning*. PAS Report 586. American Planning Association.

implementation strategies related to sustainability, equity, and climate resilience.⁵² These examples and trends also confirm that many of our current and future problems will demand regional scale planning and policy interventions.

These proposed regional land recycling plans would provide guidance from a regional economic, environmental, and land use lens by supporting regular inventories of all types of vacant, abandoned, and underused properties, land, and buildings (industrial, commercial, and residential). These inventories would serve as the foundation for further socio-economic and market analysis and insights to help local governments within the region classify and prioritize all types of vacant sites and the potential reuses in a more comprehensive and holistic way that advances the three driving policy goals—equity, climate resilience, and green economic development. These plans would enable the region and the local governments to scale the recycling of different types of vacant and abandoned properties by comparing clusters of sites across multiple cities to see patterns of investment, vulnerability, reuse potential, and how more “equitable” land recycling can address past and current patterns of disinvestment in light of changing socio-economic and environmental conditions.⁵³

In many ways, the regional land recycling plans would operate as a strategic policy plan that local government officials would apply as an overlay to their own plans—land use, economic development, housing and community development, sustainability, resilience—that can help them develop more sustainable, resilient, and equitable communities. The regional land recycling plans would include regionally relevant policy goals and objectives, a diverse typology of reuse strategies, and guidance and resources for how local governments can do land recycling. Within the realm of planning hierarchy and analysis, these regional plans would be a factor in determining alignment/consistency of local comprehensive plans, zoning codes and development decisions with the regional goals, objectives, and analysis.⁵⁴ Thus, with any conflict that might arise between a local comprehensive plan and the regional plans, the local comprehensive plan could prevail as it is the more specific plan. However, that will likely become a pivotal legal and policy issue that policymakers and perhaps the courts may need to

⁵² U.S. Department of Housing and Urban Development, PD&R Updates, *Cityscape Examines the Sustainable Communities Initiative and the Family Options Study*, December 6, 2017, https://www.huduser.gov/portal/elist/2017-december_05.html

⁵³ Chappel, Karen, *Planning Sustainable Cities and Regions Towards More Equitable Development*, Routledge, 2015.

⁵⁴ From a planning practice perspective, it would be important for the regional entities to conduct some review of local land use plans (not development decisions) to document the level of consistency or inconsistency with the RLR plans.

resolve.⁵⁵The goal is not for these plans to automatically preempt local land use decision-making, but to establish parameters, guidance, and incentives that local governments can apply beyond individual sites as they think about land recycling and vacant property reclamation in a more holistic way.

Charter Regional Land Recycling Consortiums

One of the pivotal questions is what type of entity should be responsible for completing, implementing, and resourcing these regional land recycling plans? Instead of creating new entities, it would make the most policy sense to leverage the expertise and experience of existing regional entities such as metropolitan planning organizations or regional councils of government as many of them also have capacity and experience creating regional plans. Regional economic development authorities bring different types of capacities that relate to redevelopment, economic forecasting, and market analysis that would be strategic to have when thinking about alternative reuse options for vacant and abandoned properties. County land bank authorities might be ideal to lead the regional land recycling effort given their special legal authorities and policy expertise to reclaim vacant and abandoned properties (e.g. from acquisition and maintenance to demolition and disposition). As a result of the 2008-2012 great recession and mortgage foreclosure crisis, several states (e.g., Ohio, New York, Pennsylvania, Tennessee, etc.) enacted new laws that authorize counties to create land bank authorities that handle primarily tax delinquent abandoned homes.⁵⁶ Some of these land banks have dabbled with commercial and industrial properties but not with a special focus on brownfields redevelopment nor at the scale necessary for a land recycling approach. Over the years, policy experts have made the case for creating a new type of land bank devoted exclusively to brownfields,⁵⁷ but only a handful exist.⁵⁸

⁵⁵ Edward J. Sullivan, Recent Developments in Comprehensive Planning Law, 43 URB. LAW. 823 (2011)

⁵⁶ According to the Center for Community Progress they estimate around 250 operating land banks in the country as of July 2021. Michigan and Ohio have perhaps the most robust and comprehensive network of county land banks thanks in part to their comprehensive state land banking statutes. Michigan, Ohio, Georgia, Pennsylvania, and New York also have statewide land bank associations. See Center for Community Progress's interactive land bank map (<https://communityprogress.org/resources/land-banks/national-land-bank-map/>).

⁵⁷ Evans Paull and Seth Otto, Inventing the Brownfields Land Bank, http://www.redevelopmenteconomics.com/yahoo_site_admin/assets/docs/Brownfields_Land_Bank_brfd_renl_online_long_final_w_jpeg_sidebars.15764623.pdf

⁵⁸ Connecticut Brownfield Land Bank, Inc., <http://www.ctblb.org/index.html>

Instead of designating one type of regional entity, a consortium approach might work best where EPA would designate one or two lead agencies. The consortium's membership could include other regional entities, local governments within the region, and relevant NGOs. In its application to EPA the consortium would outline their respective roles, responsibilities, and proposed process to develop and implement their regional land recycling plans. A consortium of entities would enable participants to tailor their approach and participation according to regional/local dynamics and leverage the relative strengths of each entity. The BFs Regional Planning Act (RPA) could also provide flexibility in determining the scale of the consortium and scope of these plan that could mirror geographies of multiple counties, MPOs or regional councils.⁵⁹

Invest in and Elevate the Roles of Capacity Building Intermediaries

Systems change at this scale will require additional support as regional and local officials gear up for implementation of the BFs RPA. Regional councils/governments and local governments with extensive planning capacity may not know much about brownfields redevelopment and land recycling. Other agencies, such as regional and local economic development authorities, may have experience with individual brownfields projects but less capacity on areawide revitalization or reclamation of other vacant properties. As it has done over the past 25+ years, the EPA's Brownfields Program could strategically leverage and expand its existing network of nonprofit intermediaries and technical assistance centers to assist regional organizations and local governments in this important transition to land recycling.⁶⁰ Although the EPA Brownfields Program itself does provide some technical assistance, given the metropolitan nature of the RPA, it would be more efficient and effective to designate and provide guidance and technical assistance through its national network of brownfields intermediaries, university centers and especially EPA's 10 regional offices. Given the climate equity imperatives to get these regional brownfields consortiums up and running, the EPA would need significant resources that it can dedicate to a more robust portfolio of multi-year

⁵⁹ Insights from the structure of HUD's Sustainable Communities Initiative under the Obama Administration could be instructive as the regional grantees ran the gamut, including some large multi-regional partnerships. See, Heberle, Lauren, B McReynolds, S Sizemore, and J Schilling. (2017). HUD's sustainable community's initiative: An emerging model of place-based federal policy and collaborative capacity building. *Cityscape: A Journal of Policy Development and Research*. Vol. 19, No.3, pgs. 9-37.

⁶⁰ EPA's Brownfields Office currently funds 6 assistance centers that cover EPA's 10 regions along with 3 national technical assistance providers. For the first wave of RPA development and implementation, we anticipate the Brownfields Office would need to triple the number and its investment in these assistance centers. <https://www.epa.gov/brownfields/brownfields-technical-assistance-training-and-research>

cooperative agreements, contracts, and grants to support this capacity building effort. At a minimum, Congress would need to regularly appropriate the full \$250+ million under the BFs Act of 2002 to kick off the implementation of the RPA.

CONCLUSION

In 2011, Chris Nelson and the late Robert Lang⁶¹ set forth a new megapolitan framework to explain the convergence of economic, cultural, demographic, geographic, and social dynamics happening at the scale of megaregions that would define the growth patterns for 75% of Americans for the next 20+ years. Chris Nelson observed that nearly half of what would need to be built by 2030 did not exist in 2005.⁶² Although the acute and chronic socio-economic impacts on the real estate and land development markets from the Great Recession and now the COVID-19 Pandemic no doubt require a recalibration of his original projections, Chris Nelson's pioneering work provides policymakers and researchers with a sound approach and a solid baseline from which to build on. Given the acceleration of climate change leading to more intense natural disasters, further modifications will likely have to be made. As our development and growth patterns adjust and adapt to these and other dramatic trends in where and how we work and live, it seems inevitable the scale, scope, and pace for recycling vacant properties and abandoned buildings will only increase. Taking another play from the Chris Nelson playbook, this article adopts a regional or metropolitan planning framework as the foundation for a more robust and comprehensive approach to brownfields redevelopment and land recycling that can prepare communities for current and future waves of property vacancy and abandonment.

⁶¹ On a personal note, I wish to acknowledge the 2021 passing of Dr. Robert Lang. Rob and Chris came together to form their partnership as they launched a graduate level urban planning program and the Metropolitan Institute for Virginia Tech (2002-2008). I had a front row seat during many of their discussions, lectures, and brainstorms, working for them as a research professor/senior fellow for four of those years. Their impact on my research and career as well as the field are extensive and immeasurable.

⁶² *Megapolitan America: A new vision for understanding America's metropolitan geography*, AC Nelson, RE Lang – 2011; A megaregion is characterized by common economic structures, culture, history, topography, and climate, among other factors. The United States is composed of 10 megaregions. Together they account for three-quarters of the nation's population, but they make up a fifth of the land located in the contiguous states.