

WORKING PAPER

**An Inventory of Research Capacity on Cities
at the University of Connecticut**

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I. Introduction: Universities and Urban Research

Scholarly research on cities covers a broad range of themes, reflecting the ubiquitous complexity of urban life. Although high levels of urbanization are relatively recent additions to human settlement patterns, the rise of cities in even the most ancient civilizations—including Mesopotamia, China, and the Aztec and Inca empires—reveals a striking and arguably timeless characteristic of the human condition: the desire to live in densely populated agglomerations. Scholars have attempted to determine the functions of these agglomerations and to understand their characteristics and consequences, both positive and negative, given their appearance across diverse cultural and environmental settings.

This essay provides an overview of research on cities, identifies how universities have approached this field of study, and describes the research capacity at UConn relevant to the field. Part B of this essay will present options for building upon UConn resources to address the challenges of today's cities, enhance excellence in research needed to meet and thereby position UConn to be a national and global leader of engaged scholarship on cities.

Although research on cities can be theoretical, it tends to take the form of context-specific, applied research that focuses on particular geographies--of a city, group of cities or region--or on a theme of particular relevance for cities. This research is generally comparative, contrasting cities or neighborhoods in terms of cultures, landscapes, climatic zones, urbanization patterns, or administrative jurisdictions. Comparative case studies generate unique insights or provide the basis for drawing globally applicable generalizations about urban life. Applied research may be less universally generalizable compared to theoretical approaches, but outcomes generated by it still have the potential of very broad relevance and impact, given that, as of 2007, over 50 percent of the world's population lives in cities, according to UN estimates.

Contemporary research on cities relies extensively on interdisciplinary approaches, in part because the interactions of natural systems with the built environment and residents of cities are complex and involve multiple feedback mechanisms. The complexity of resource utilization needed to support dense human environments arises from the movement of people, goods, and services in a geographically limited albeit extensive area. These produce multiple external effects, both negative and positive, that are increasingly relevant in an increasingly interconnected global society. Such intricacies are evident in food policy as it relates to urban-rural food production reliance, communal food sovereignty, and land degradation and habitat fragmentation associated with unsustainable agricultural practices. The complexity of these topics engages scholars across multiple research themes, as some policymakers look to innovations such as urban vertical farms and rooftop gardening as means of re-localizing food

production. Goals of societal and environmental wellbeing are inherently intersectional, as both the built and natural environment contribute to the health of urban populations.

Scholarly research on cities has ebbed and flowed during the last two centuries. The emergence of the industrial city with rapid urbanization in the 19th century in the West generated classic works in Geography, Economics, and Sociology. Urbanization has also led to the formation of new disciplines and fields, such as Public Health, Epidemiology, Social Ecology and Civil Engineering.

In today's world, the high level of global urbanization, the integration of the global economy, foreseeable impacts of weather events due to climate change, and increasing cultural diversity in cities have generated new and urgent challenges and research agendas, attracting increased attention from prominent national and international organizations.² In the US, Connecticut has the eleventh highest percentage of population living in urban areas, at 88 percent, but with a distinct urbanization pattern comprising small cities and towns shaped by riverine and coastal waters that poses unique challenges and opportunities. In addition to disciplines, especially social sciences, that have traditionally analyzed these matters, technological and scientific fields are highly relevant to such emerging issues as improved resource utilization and technological innovation to generate resiliency in urban infrastructure systems and the built environment. These emerging and increasingly transdisciplinary research agendas will have direct impacts on the quality of life, prosperity, and wellbeing of urban residents. As will be seen below, UConn has a solid foundation for addressing calls to action related to many of these significant societal challenges.

Universities and Urban Research Centers. Many universities established centers to support collaborative research into complex, multidimensional urban topics. Expanding significantly in the 1960s and 1970s, research centers often focused on the urban problems of the day, including housing, spatially concentrated poverty and neighborhood decline, and urban transportation. Policy evaluation was a prominent topic as federal agencies imposed evidence-based evaluation of federal urban programs. Some centers focused on urban problems in developing countries. In recent decades, ecological and health perspectives on cities have come to the fore.

Urban-focused research centers can be found in many public universities, including Rutgers University and the Universities of Washington, Virginia, North Carolina, and Massachusetts. Private institutions, among them Northeastern University, Fordham University, NYU, MIT, University of Pennsylvania, Harvard University, and Trinity College, have urban centers. Activities often include a research specialization addressed by a core set of research faculty. Other centers, such as the Mansueto Institute for Urban Innovation at the University of Chicago, have concentrated resources around several key research initiatives, including spatial data science, housing law and policy, and urban cognition. Transformations in markets, service needs, and resources have prompted a number of innovative research clusters, such as the Ash Center's Data-Smart City Solutions initiative at Harvard University. Similarly, the Massachusetts Institute of Technology hosts multiple urban-focused research centers, including the Senseable City Lab, which studies digital disruptions and opportunities in urban settings, and the Leventhal Center for Advanced Urbanism, which specializes in planning, design, and urban construction. Other emergent urban challenges have prompted robust, focused university responses; notably, Arizona State University's Decision Center for a Desert City (DCDC), supported by the National Science Foundation, has been formed to address questions of water usage and development in increasingly arid environments.

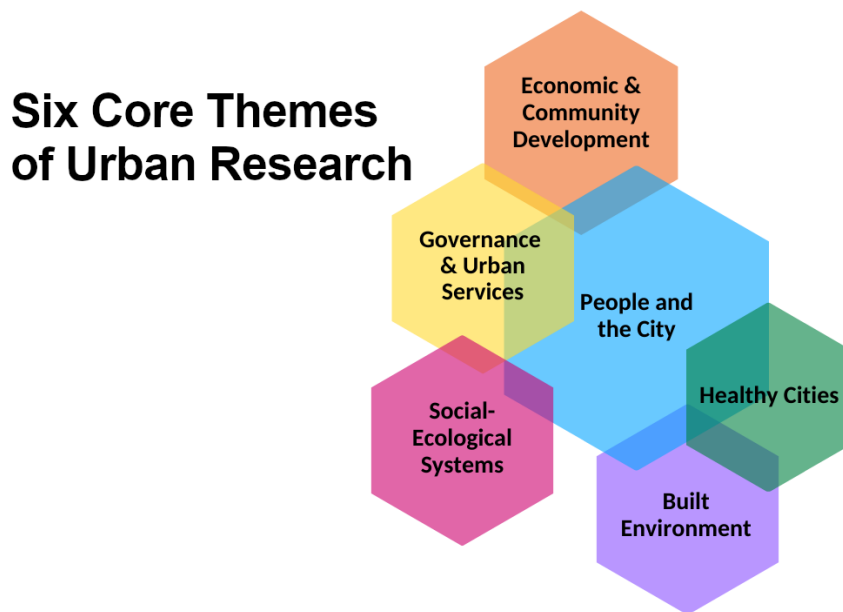
Some centers, such as the Center for Urban Studies at the University of Buffalo and the Levin College of Urban Affairs at Cleveland State University, engage extensively with local communities. Efforts include

hosting summer camps for local youth and working directly with community members through neighborhood programs on historical preservation, affordable housing, health, and women’s leadership. Commonalities across these successful urban centers involve their adaptability and capacity to leverage university strengths and resources in collaboration with external assets. While some centers are housed under traditional academic departments, with corresponding research agendas, others embrace a broader range of research in a university-wide framing. The academic field is supported by the Urban Studies Association and the Coalition of Metropolitan Universities, and many disciplinary associations also support urban-focused research. Habitat UNI (previously the Habitat Partner University Initiative), with with 100 higher education partners around the world, promotes cooperation between UN-Habitat and institutions of higher education and facilitates exchange and cooperation among universities.

II. UConn Research Capacity on Cities: The Framework and Overview

To facilitate the compilation of research on cities at UConn, this document utilizes six themes (see Table 1) that broadly cover the range of scholarship on cities. In the following sections, the themes are defined and research questions identified, and the UConn research resources reported. As expected with complex phenomena and interdisciplinary approaches, these themes can and often do overlap; a single piece of research may include characteristics of multiple themes and cut across several traditional research disciplines. Nevertheless, these themes help frame a “first cut” overview of UConn’s current urban-related research capacity and identify the existing strengths as program options that the Sustainable Global Cities Initiative (SGCI) could develop (Part B of this essay).

Table 1: Organizing Themes for Research on the City



The initial inventory of resources reveals substantial research capacity across the six organizing themes (see Table 2). The Faculty Affiliates self-identified as having research interests relevant to the SGCI. The centers/institutes listed in table were identified through conversations with directors and faculty members and web-site review as having a research focus (perhaps a secondary focus) related to cities. Several research centers are included in multiple categories since the primary work falls substantially under two themes. In sum, UConn possesses a significant base of resources that could support research on cities.

As anticipated, the theme of People and the City draws the greatest number of researchers, primarily affiliated with the College of Liberal Arts and Sciences (CLAS). The themes of Healthy Cities and Social-Ecological Systems have a multiple research centers, suggesting a consolidation of research capacity in these areas. Most themes draw from multiple colleges and schools, a result anticipated by the interdisciplinary approaches to research on cities. The themes with apparently a narrower research capacity base include the Built Environment, Economic and Community Development, and Governance and Urban Services.

Table 2: Research Resources by Theme and School/College

Faculty Associates by Theme and School/College

DRAFT, Not for Distribution (Spring 2020)

Resources By Theme

	People and the City	Healthy Cities	Social-Ecological Systems	Built Environment	Economic Development	Governance and Services	Total
Research Centers	7	10	14	9	7	1	48
SGCI Faculty Affiliates <i>Primary Research Theme*</i>	31	12	15	9	8	5	80
SGCI Faculty Affiliates <i>Secondary Research Themes*</i>	27	15	17	16	23	20	118

* N= 80. Faculty Affiliates select one primary Research Theme, but may select multiple secondary Research Themes.

SGCI Faculty Affiliates by Theme and School/College

	People and the City	Healthy Cities	Social-Ecological Systems	Built Environment	Economic Development	Governance and Services	Total
College of Agriculture, Health, and Natural Resources		2	7		1		10
College of Liberal Arts and Sciences	26	8	8	6	5	4	57
Breakdown of CLAS faculty	<i>Social Sciences</i>	15	4	4	1	4	31
	<i>Humanities</i>	9			2	2	13
	<i>Natural & Life Sciences</i>	2	4	4	3		13
Neag School of Education	4						4
School of Business					1		1
School of Engineering				2			2
School of Law				1			1
School of Social Work						1	1
Other UConn Schools and Colleges	1	2			1		4

III. The SGCI's Six Core Themes of Urban Research



People and the City

Urban environments are ultimately and unceasingly shaped by their residents, who are themselves affected by local and regional historical trends, legacies of diasporas and immigration, the local economy, and the socializations of their respective communities. Cities are appealing places to live in part due to the inherent dynamism generated through diverse interactions, cultural exchange, and competing ideas. Cultural expressions in architecture, theater, literature, music, cinema, dance, and the visual arts are often the products of individual creativity that benefits from an urban cultural milieu. Even as urban environments can draw people together, however, they can also stratify and render some individuals vulnerable, perpetuating societal rifts through segregated neighborhoods, unequally provisioned public services, income inequality, gentrified schools, criminality, and homelessness. The high population densities in cities make these contrasts in social conditions highly visible. Yet social capital networks exist in many interwoven forms, as neighborhoods and communities strive together to overcome hardships and take advantage of opportunities in cities. For these reasons the theme People and the City is foundational in urban research and the themes that follow all relate to it.

Population dynamics – especially in various subpopulations defined by gender, race/ethnicity, age, income bracket, and neighborhoods – have become major components for research on contemporary urban issues. For example, variation in fertility rates across segments of a population as well as in migration patterns can change a city's demographic composition, and these dynamics affect the local economy, social organizations, urban services, and other local activities. One of the great challenges in cities today is understanding factors that contribute to, or impede, intergenerational socioeconomic mobility – a complex population dynamic that relates not just to employment opportunities but to access to education and training, social networks, and other structural elements of cities affecting the life prospects of youth.

Urban environments affect resident populations through knowledge systems, histories, and cultural constructs that in turn contribute to concepts of gender, sexuality, family dynamics, and social status. Historically, the New England town square and local churches shaped attitudes about social relations, including local governance. Educational systems, ranging from early childhood to mid-career workforce training, delivered through public, private, and non-profit organizations, shape life prospects of individuals as well as social development through the establishment of shared norms, networks, and knowledge clusters. But participation in these systems is deeply related to, and affected by, their socioeconomic environments and local governance systems. Comparative studies across cultures and regions of the world provide yet more variation for the study of these systems.

The effects of contemporary globalization on urban populations through communication, popular cultural consumption, proximity to diverse communities, economic dislocation, and other developments constitute the focus of research agendas. Flows of people across borders, or even within areas of a single country, become useful in developing an understanding of how place affects life prospects, a topic of great interest to those concerned with issues as diverse as cultural expression and the perceived decline in intergenerational mobility. Further questions arise concerning the distinct experiences and

expectations different groups construct regarding shared systems of politics, criminal justice, mobility, and markets.

At UConn 31 faculty members (see Table 2) from a range of disciplines have self-identified as Faculty Affiliates, supported by seven research centers, engage in the study of populations, occasionally with an explicit urban focus but more frequently with an implicit urban focus. The social science disciplines at UConn, which examine different dimensions of populations and social exchanges, sometimes adopt an urban frame of reference but generally not in subfields such as urban politics, urban sociology, urban geography or urban economics. But many other disciplines are relevant to cities and their inhabitants, including fields as diverse as Psychology, Medical Sciences, Fine Arts, Human Development and Family Sciences and several fields in the Humanities, notably History, Archaeology, and Modern Languages, provide yet other relevant perspectives. Thus, although the UConn research effort does not necessarily adopt an urban or global focus, it nevertheless offers opportunities for new collaborative networks. In addition, while some specific research areas, such as urban population dynamics and political systems, are not examined in much depth at UConn, and subfields on minority populations in the US and urban populations in developing countries would benefit from greater engagement of UConn research resources, topics such as residential segregation and intergenerational socioeconomic mobility are important for academic research, as noted above. Despite some specific disciplinary understaffing, UConn resources related to the theme of People and the City are substantial and could potentially support urban-related research involving population dynamics in a wide variety of departments. In the remaining research themes, discussed below, urban populations will be examined in relation to the complex, multidimensional contexts of the city.

Table 3: UConn Institutes and Centers Relevant to *People and the City*

- African Studies Institute
- Asian American Institute
- El Instituto: Institute of Latino/a, Caribbean, and Latin American Studies
- Women's Gender and Sexuality Studies
- Middle Eastern Studies Institute
- Center for Applied Research in Human Development
- Center for Judaic Studies and Contemporary Jewish Life



Healthy Cities

Despite the inevitable historical trend toward the formation of cities, these were often unhealthy places. In the case of ancient Rome, water-borne illnesses in the port area led to the relocation of the wealthy to just outside the city but also spurred innovation in the piping of potable water via aqueduct. During the early years of modern industrialization in the 19th century, unplanned neighborhoods of industrial laborers produced horrific living conditions, as was the case in Hartford.³ The common pattern of insalubrious industrial cities eventually contributed to the creation of several professional fields, including Public Health, Public Administration, Social Work, Pharmacy, and others. Much later, the urban hospital and related research centers became

economic cornerstones of some cities due to their longevity, resources, and knowledge production systems.

Modern urban environments, with their relatively high population densities, expose residents to such stressors as air and water pollution, infectious diseases (especially water-borne), and reduced access to green space. In addition to the direct physiological health challenges posed by urban settings, local populations may also face psychological and emotional stresses related to living in potentially crowded, unsafe, and/or dilapidated areas with poor urban services. Historically disadvantaged or marginalized populations, including immigrant groups or individuals unable to build in resilience-based social networks, may suffer from the effects of isolation even within nominally dense areas. As urban populations grow, determinants of health and quality of life within cities are attributable primarily to differing degrees of agency and access. These metrics cannot be aligned with a single academic discipline but instead necessitate interdisciplinary coordination and dialogues.

Cities are increasingly viewed through an analytical lens of health, in part due to the widely documented array of health inequities across neighborhoods, even within single cities.⁴ These inequities can be associated with a range of factors, including race/ethnicity, family income, access to services, environmental factors, and exposure to construction materials (e.g. asbestos and lead). Though high-quality healthcare and resources are generally available to those with means, socioeconomically stratified urban geography (commonly referred to as residential segregation) often generates food and resource deserts, gentrified green spaces, abandoned properties, and unsafe conditions. While underserved communities have been served by locally owned small businesses, non-profit, religious and philanthropic organizations, and resident groups, the private and public sectors typically underinvest in lower-income communities, further exacerbating inequitable conditions.

Yet notions of what constitutes a healthy environment remain disparate and are constantly evolving among stakeholders, and they depend on a multitude of factors, some based on personal characteristics and others associated with the community. Traditional health care and public health practitioners can orient those who evaluate and design the built environment, such as geographers, land use planners, engineers, and architects, about the risks associated with built and natural environments (themes discussed below) in cities and their effects on wellbeing. But even the formation of such networks can be contentious, as different social and demographic groups seek representation in the ongoing conversations about definitions of urban health and wellbeing.

UConn has impressive capacity in health research, spanning both traditional health fields,⁵ including Medicine, Dentistry, Pharmacy, Nursing, Kinesiology, and Allied Health Services, as well as Urban and Community Studies, Human Development and Family Sciences, and Social Work. Twelve self-identified Faculty Affiliates have research interests related to healthy cities. Health-related research at UConn relies heavily on the highly successful Institute for Collaboration on Health, Intervention and Policy (InCHIP) for project development and management, with over 400 affiliate investigators, as well as a diverse set of 10 other research centers. These combined research efforts are frequently interdisciplinary in order to identify physical (e.g., environmental) demographic, or cultural factors that determine health outcomes.

Multiple UConn researchers, including those associated with the Rudd Institute for Food Policy and Obesity, study obesity and weight management, which are widely recognized as primary factors in determining health outcomes. Urban residents lacking access to nutritious food options or green space for exercise, or else subject to detrimental pollutants constricting cardiovascular and respiratory capacity, are at increased risk of obesity and its accompanying health challenges. Means of reducing


obesity rates through food policy and environmental regulations remain key questions of urban scholarship. Additional UConn institutions such as the Zwick Center for Food and Resource Policy and various scholars in the College of Agriculture, Health and Natural Resources study food policy, nutritional sciences, and systems of food production as they relate to environmental wellbeing.

Other topics studied by UConn faculty members concern effective health interventions and health promotion efforts, especially through such lenses as cultural notions of sexuality, circumstances of migration, and healthcare systems. These efforts focus on specific diseases, for instance HIV/AIDS, on addictions to opioids and other substances, and on challenges to general wellbeing. Additionally, researchers in the School of Social Work and other departments are investigating questions such as the effectiveness of emergency psychiatric services for youth, the effects of incarceration on the health status of individuals and families, and the impacts of resource support to families with children at risk for maltreatment.

The healthy cities research agenda at UConn is robust, multifaceted, and collaborative, and it addresses topics affecting urban Connecticut and beyond. In combination with extensive medical research conducted at UConn School of Medicine and the success of InCHIP, UConn has acquired a steady stream of external grants supporting research critical to this priority theme.

Table 4: UConn Institutes and Centers Relevant to *Healthy Cities*

- Institute for Collaboration on Health, Intervention, and Policy (InCHIP)
- Rudd Center for Food Policy and Obesity
- Center for Applied Research in Human Development
- Health Disparities Institute
- Center for Environmental Health and Health Promotion
- Connecticut Area Health Education Center Network
- Community-Engaged Health Research Core
- Center for Nursing Scholarship and Innovation
- Zwick Center for Food and Resource Policy
- UConn Center for Health and Social Media
- UConn Extension Health Programs



Social-Ecological Systems

Social-Ecological Systems

Scholarly communities are in the midst of a revolution in conceptualizing the interaction of human-dominated and other biophysical systems. While systems analysis applied to urban environments and the incorporation of nature in urban design have been utilized for many decades, the continuous growth of urban populations, concerns about increased utilization of natural resources, and impacts of climate change have amplified the diversity of research paradigms. Historically, the relationship between the natural environment and urbanization was one of the latter degrading the former as a consequence of air and water pollution, excessive waste production, and depletion of land resources and green spaces. Questions about constraints on natural resources, especially non-renewable resources and vulnerable ecosystem services, i.e., benefits produced by natural systems, have focused researchers on understanding the limits of resiliency of

natural systems and spurred research on the efficient use of natural resources, the accurate appraisal of natural systems in terms of economic value (e.g., ground water filtration systems, carbon sequestration), and the innovative application of natural systems in infrastructure services. Furthermore, a growing body of scholarship recognizes the positive consequences to the physical, mental, and emotional health of people that arise from improved access to green spaces. The benefits of natural systems within urban areas are becoming better understood, and sustainable strategies for utilizing these systems are central to scholarly research on social-ecological systems.

Another compelling research topic that falls under this theme is cities and climate change. Cities are major producers of greenhouse gases that contribute to global warming, and a broad range of urban strategies to reduce urban emissions have been developed. The role of climate change on weather, especially in generating extreme events (e.g., droughts, floods, cyclonic events), has become an issue in cities around the globe, especially those located near bodies of water and increasingly prone to flooding, property damage, and increases in infectious disease. Although urban flooding is the most visible challenge, instances of severe aridity, exposure to cyclonic storms, dramatic reductions in biodiversity, and inadequate management of water resources have come to the fore as well. Another issue that has yet to be fully engaged at the level of public policy is sea level rise and the risks that it poses for assets in coastal cities and communities.

These multiple lines of environmental study draw on researchers in Anthropology, Atmospheric Sciences, Biology, Ecology, Economics, Geography, Geosciences, Hydrology, Marine Sciences, and Natural Resources and the Environment, as well as in Chemical and Biomolecular Engineering, Civil and Environmental Engineering, Mechanical Engineering, Computer Science, Information Technology and Sensing, Landscape Architecture, and Materials Sciences.

UConn has established a deep commitment to environmental studies, as evidenced by its 2017 Climate Action Plan, which sets ambitious goals for carbon emission reduction on campus. In addition, a wealth of researchers (over 100 professors are affiliates of the Institute of the Environment) and programmatic resources in departments in the College of Agriculture, Health and Natural Resources, College of Liberal Arts and Sciences, and School of Engineering are devoted to environmental studies and interdisciplinary academic programs, supported further by a robust set of academic centers and institutes led by the umbrella organization, Institute for the Environment. A subset of 15 of these environmental studies researchers with interests in interaction with the social systems found in cities (1) address questions of the relationship between healthy ecosystems and designed environments; (2) examine knowledge and technology transfer in areas such as farming, sustainability, and adaptation, thereby assessing the role of urban communities in the biosphere; (3) address environmental biology from foundational and applied perspectives, especially as they relate to global change and conservation; and (4) explore technological solutions to problems related to distribution and availability of energy and water, as well as the processing of waste materials in urbanizing areas. Many of these resources have found expression in public engagement through UConn Extension, the university's status as a Land Grant and Sea Grant institution, and research associated some 15 institutes and centers.

The Greenwich-UConn Partnership (UConn's Center for Environmental Sciences and Engineering and Department of Ecology and Evolutionary Biology in collaboration with the Town of Greenwich's Conservation Commission and Shellfish Commission) represents a unique model of linking UConn's research strength in Socio-Ecological Systems to challenges in cities and towns. This partnership between local government and UConn focuses on understanding coupled human and natural systems and the conservation of natural resources to promote sustained ecosystem services in and around Long Island Sound, the preeminent urban estuary in the country.

UConn environmental studies capacity is impressive and represents remarkable potential for aligning with sustainability objectives in the urban context. Areas that could be strengthened in terms of faculty research capacity include environment inequalities that are increasingly salient in the US and abroad, especially among minority groups in cities; evaluation of ecosystem services in cities and other densely populated areas; and spatial analysis of ecosystems in populated areas. While substantial faculty resource capacity in Social-Ecological Systems exists at UConn, several subtopics related to the interaction of these systems with human populations could be amplified. Expansion of research capacity in these critical topics would enhance the university’s connection to cities and towns (human systems) in Connecticut, the United States, and abroad.

Table 5: UConn Institutes and Centers Relevant to *Social-Ecological Systems*

- Institute of the Environment
- Connecticut Institute of Water Resources
- Connecticut Institute for Resilience & Climate Adaptation
- Connecticut Transportation Institute (CTI)
- Institute for Advanced Systems Engineering (IASE)
- Center for Environmental Sciences and Engineering
- The Zwick Center for Food and Resource Policy
- Center for Land Use Education and Research
- Center for Biological Risk
- Center for Energy and Environmental Law
- Human Rights Institute
- Center for Integrative Geosciences
- Center for Clean Energy Engineering
- Eversource Energy Center
- Fraunhofer Center for Energy Innovation



Built Environment

Human settlements inherently entail construction; natural resources are reshaped and used to build structures, supplementing and/or displacing natural environments. Most human activities, including housing, commerce and industry, religion, government, education, cultural activities, and many others are conducted within such structures. In addition, major infrastructure systems, among them water and wastewater, energy, transportation, and communications, involve construction and are important elements of the built environment, frequently extending well beyond city limits.

A significant body of research concerns the interactions between people and the built environment, as humans both determine and are shaped by their surroundings. Pressing issues include affordable and safe housing as measured through the adequacy and quality of supply; reliable transportation systems that mitigate environmental impacts while maintaining efficiency; sustainability of infrastructure and the rehabilitation of dilapidated structures; and policy mechanisms, such as land use and zoning regulations that affect property values and development opportunities. In response to some of these

challenges, a substantial academic and community-organized movement surrounds transit-oriented development, which promotes using measures like decreased automobile reliance, heightened density, and mixed-use property development as tools to achieve social equity, economic growth, and environmental sustainability.

Significant challenges associated with the built environment emerge in maturing industrial cities and towns as existing infrastructure and buildings age and need to be rehabilitated or replaced under strict economic and environmental limitations. As cities are durable environments, upgrading infrastructure built under earlier economic and technological conditions presents challenges, as do weather events, such as flooding, which render earlier building codes outdated, if not obsolete. The built environment requirements of an evolving, knowledge-based economy have social, fiscal, and resource constraints that differ substantially from those of an industrial city. Research in the built environment field utilizes not only geospatial and statistical tools and materials science but also careful study of the policies and political economies that either incentivize sustainable and adaptable built environments or reinforce problematic practices.

Today's cities have increasing access to a wide range of technologies related to infrastructure development and maintenance that rely on digital information and sensor systems. Often referred to as the emerging field of Smart Cities, new sources of urban data have also aided scholars studying urban resource flows, mapping the processes by which material and energy resources are introduced, utilized, and recycled (or discarded) through urban markets. The implications of such research relate to a vast array of important topics, for example carbon (and general pollution) mitigation, food production and waste, energy structures, and traffic management.

Research disciplines contributing to this field include various engineering disciplines (primarily Civil and Environmental Engineering), Environmental Sciences, Architecture, Urban Design and Landscape Architecture, History, Business (especially Real Estate), Finance, Economics, Public Administration, Social Work, Public Health, Geography, and Urban Planning. Materials Science is increasingly important in developing an understanding of the impacts of particular materials and offers technological innovation in new building materials. The study of the built environment frequently adopts a broad historical perspective, ranging from the contexts in which construction has taken place to the behaviors and networks that have been shaped and reshaped by urban landscapes.

The resources at [UConn](#) devoted to research on the built environment in cities are substantial, including over 9 self-identified Faculty Affiliates and nine research units. The Connecticut Transportation Institute brings together researchers from the departments of Civil and Environmental Engineering, Geography, Computer Science and Engineering, and Natural Resources and the Environment to conduct research on safety and efficiency in transportation, sustainability, and environmentally conscious economic development. The Connecticut Brownfields Initiative is an established coalition of academia, government, and industrial partners that provides work on remediation and redevelopment of abandoned properties for Connecticut municipalities, a topic of high priority in the state. The Eversource Energy Center, while not adopting an explicit urban focus, conducts work on electrical grid resilience, renewable energy integration, and offshore wind energy that bears on efficient energy delivery in cities.

Research at the Center for Real Estate and Urban Economic Studies encompasses perspectives from Finance, Statistics, Economics, and Geography in assessing real estate development. UConn faculty across CLAS, the School of Business, the School of Social Work, and the School of Law conduct research on multiple facets of land use policy, legislation, tax policy, and economics, focusing on the consequences of zoning and real estate policy decisions on socioeconomically stratified groups and their

relevance to concerns about mobility, sustainability, and equitable growth. Finally, the Connecticut Institute for Resilience and Climate Adaptation (also relevant to the Socio-Ecological Systems theme discussed above) and the Center for Land Use Education and Research, in UConn Extension, conduct research and provide information, education, and technical assistance to land use decision makers.

UConn has substantial depth in research resources, faculty, and centers devoted to the built environment. Several relevant disciplines, however, such as Architecture and Urban Planning, do not constitute academic units, and research on housing, whether from a design, materials, construction, economics, or finance perspective is sparse and, therefore, offers opportunities for diversification of capacity. In addition, considerable research capacity in the School of Engineering and other related departments is relevant to questions of technological innovation in infrastructure and might be deployed to enhance contributions to the Smart Cities concept.

Table 6: UConn Centers Relevant to *Built Environment*

- Connecticut Transportation Institute
- Connecticut Brownfields Initiative
- Eversource Energy Center
- Center for Clean Energy Engineering (C2E2)
- Fraunhofer Center for Energy Innovation (CEI)
- Institute for Advanced Systems Engineering (IASE)
- Connecticut Institute for Resilience and Climate Adaptation
- Center for Real Estate and Urban Economic Studies
- Center for Land Use Education and Research



Economic and Community Development

Metropolitan areas, incorporating core cities and suburban jurisdictions in the developed and developing world, are increasingly recognized as the primary source of economic production and wealth generation in today's globalized economy. The growth prospects for individual metropolitan areas vary due to historical legacies, public policies, and levels of innovation and entrepreneurship. The Greater Hartford region, for example, was a national leader in manufacturing in the mid-19th century but has since lost much of its manufacturing base, even though its insurance industry, which emerged to support local industries, remains a key sector. Cities must also grapple with very complicated issues of human capital development, social exclusion, and neighborhood stability, which are frequently associated with residents from disadvantaged backgrounds and immigrant communities. Limited opportunities for youth education and employment among all population segments and impediments to small business development have led to a focus on inclusive development, which aims to ensure that economic growth is shared by all, in the US and abroad. Cities in the developing world face an additional challenge of incorporating the rapid demographic increase of young people in labor markets.

Knowledge of metropolitan economies is required to generate innovative approaches to promote development and prosperity for urban populations. Higher education institutions, including medical schools and technology institutes, are potential assets for promoting development. However, within

metropolitan regions, competition among neighboring cities for investment and employment limit the effectiveness of metropolitan-wide development strategies, especially in a state like Connecticut where independent municipalities are highly resistant to coordinated strategies. These potential conflicts can be somewhat ameliorated with sound research on sustainable urban growth potential and the distribution of benefits or growth.

Another unique issue found in traditional industrial cities – including many sites in Connecticut – is large quantities of abandoned industrial properties and brownfields, which cumulatively render a huge amount of land unavailable for development. Research to investigate remediation and land markets in order to prepare these properties available for development is a high priority.

University research and technology transfer can contribute to the viability and productivity of businesses. Questions concerning production technology (e.g., robotics) and innovative products (e.g., new materials) and services (e.g., digitally-based services) affect the competitiveness of both new and existing businesses. Development of these innovative products and services does not necessarily have an urban dimension, but many local governments, such as New York City with its Applied Sciences initiative, recognize the importance of encouraging technological innovation and enhancing labor force development to ensure future growth. This strategy has been visible in Connecticut for many years through organizations such as Connecticut Innovations and CTNEXT.

The policy ecosystem for economic development benefits from a multitude of governmental and non-governmental organizations and businesses themselves. Within higher education business and engineering schools engage extensively in business development. Sustainability of supply chains in the context of climate change has become a central issue, reflecting a changing environment. The search for innovation in industrial processes and new products engages the engineering and technological research resources of universities. Research on labor force and socioeconomic intergenerational mobility issues draws upon the disciplines of Economics, History, Sociology, Social Work, and Education. Finally, economic and community development strategies and policies also rely on research conducted in schools of Business Administration, Public Policy and Planning, and Social Work.

At UConn, the research capacity focused on Economic and Community Development is somewhat uneven, comprising 8 SGCI Faculty Affiliates and eight research centers. The strengths are primarily located in the UConn Tech Park and the School of Business. The latter houses the Connecticut Center for Entrepreneurship and Innovation and extends world-class research resources, facilities, and business support services to new firms. The highly-ranked Center for Real Estate and Urban Economic Studies provides research to the real estate industry. The Connecticut Center for Economic Analysis conducts research on Connecticut's economy and business dynamics and makes analyses of public policy and strategic investments available to state and local governments.

In addition, UConn engages its technology resources to support the state's economy in several ways. The facilities of the UConn Tech Park Innovation Partnership foster collaboration between university researchers and industries seeking to revitalize the manufacturing, biomedical devices, and cybersecurity sectors. The Technology Commercialization Services facilitate the transformation of UConn discoveries into commercially and socially beneficial products and services, and the university's Technology Incubator provides space and support services for the creation of new businesses. As noted above, the university also examines technological innovation and efficiency gains in infrastructure that can benefit local businesses and those tied to the global economy. Consequently, UConn also offers opportunities for research on technological innovation in Connecticut, perhaps leading to policy recommendations.

Finally, UConn’s regional campuses and extension services also engage in local and community development by tailoring teaching programs and outreach activities to local needs. The School of Social Work at UConn’s Hartford Campus incorporates community development into the teaching program. The Innovative Collaboration Space at UConn’s Stamford Campus works to empower students with industry-standard technological tools and experiences. The Human Rights Institute has a research effort focusing on economic and social rights.

The research capacity of UConn seems to be effectively engaged in economic and community development, at least in technological fields. In contrast, limited university resources are invested in state and local economic development strategies, small business and community-based development, labor force development, urban development in the developing world, and the impact of state and local tax policy on development policies. In addition, redevelopment, particularly commercial redevelopment, in urban Connecticut, receives limited attention from UConn researchers. In sum, while not all aspects of the Economic and Community Development theme are a focus of research, on net, UConn significantly engages in efforts that relate to the state’s development.

Table 7: UConn Institutes and Centers Relevant to *Economic and Community Development*

- Technology Park Innovation Partnership Building
- Technology Commercialization Services
- Technology Incubator Program
- Connecticut Center for Entrepreneurship and Innovation
- Center for Real Estate and Urban Economic Studies
- Center for Economic Analysis
- Innovation Collaboration Space (UConn Stamford)
- Extension Service Programs



Governance and Urban Services

The Governance and Urban Services theme is multi-faceted, connecting three related sub-topics, each with unique research priorities. First, urban politics attempts to understand how local residents, elected officials, and organized interests, including elites and community organizations, work to influence actions taken by local governments. Organizational forms of local governments, public finance, and intergovernmental relations structure the actions by local government. A second subarea is the provision and management of public goods and urban services, such as public education, social services, public space, and infrastructure, typically provided by governmental agencies, although non-governmental organizations, including for-profit organizations, may participate as well. Finally, given the intense, and often conflicted, interests and income inequalities in cities, disparities in urban services provision constitutes a third subarea of research.

The study of local democracy and urban politics is pursued primarily by political scientists, with contextual and social elements of local governance investigated by historians, sociologists, anthropologists, and legal researchers. A particularly salient research question in US cities is the

remarkably low turnout in elections, especially by Latinx. In other political settings, election systems and laws, political parties, and informal networks can facilitate or impede electoral participation. But citizen participation can also be increased through interaction with local government officials, sometimes mandated by citizen participation provisions for public meetings, a topic of great interest in the public administration literature. Service providers and advocacy organizations seek research in support of their causes.

The provision of public goods and urban services by governments is wide-ranging and includes social services, infrastructure systems, waste disposal, land use management, public transportation, EMS and public safety, monitoring environmental quality, libraries, and cultural facilities, among others. Fundamental issues include establishing the proper level and range of services to be provided, ensuring efficient and equitable service delivery, and developing funding models that are consistent with fairness and local financial resources. In fact, issues of revenue generation and funding of infrastructure are salient around the globe. Growing opportunities for municipal governments to utilize technological developments, such as sensory technology and data collection mechanisms, are available for the management of urban infrastructure and monitoring environmental quality. Finally, intergovernmental relations, especially intergovernmental finance, continue to have profound effects on government performance, and scholarly research needs to be integrated into policy discussions around competing regionalization and localization discourses.

Although governments – in the US and abroad – most frequently provide urban services, non-governmental organizations, including both non-profit and for-profit, may also provide some services. When a lack of trust between local government agencies and residents exists, non-profits or community-based organizations may facilitate communications or reach hard-to-serve populations. Many scholars believe that community-based organizations are better able to articulate the unmet needs of their client populations, addressing mismatches between top-down policies and the communities they are intended to affect. Privatization of public services is often expected to increase efficiency, which may be attractive for municipal governments struggling with long-term debt obligations and lethargic economic growth. However, questions of democratic accountability and municipal transparency arise as private firms integrate sensory technology and data collection mechanisms, with often opaque restrictions for usage and distribution, into public infrastructure.

Surveying the question of urban services across the globe, the United Nations has embedded equity concerns in several of its Sustainable Development Goals. In many countries, representatives of low income populations frame inequities in urban services as a question of economic and political rights, the so-called rights to the city movement. The United Nations has given support to this concept as a mechanism to improve service delivery to poor urban populations. Given the vast range of urban service delivery in countries around the world, comparative global studies on service delivery are promising.

The provision of urban services is often contentious, in part because of disparities in geography, the income and racial-ethnic composition of local populations, outcomes in health and education services, and tax bases. Scholars seek to understand both the causes of the disparities and interventions that might ameliorate them. At the metropolitan level, there is a striking spatial mismatch between dependence on local services and the revenues being generated to provide services, as witnessed in the Hartford metropolitan area. Long-term debt obligations, high service needs, and a property tax base heavily populated by exempt organizations continue to challenge city officials. The spatial mismatch of tax bases and service needs can generate tension between universal service obligations and the potentially higher expense of providing services to groups with higher needs. A highly visible example of this challenge is found in public education, with substantial disparities in student achievement between

central city and suburban schools. Efficiency and fairness in service provision (including management and monitoring of large systems, such as public education and health care) and sustainability in resource use are also fundamental elements of local government.

Given the size of government and its impact on residents and the economy of the state, the influence of UConn's research capacity on the Governance and Urban Services theme is modest. Five Faculty Associates and two research centers work under this theme. Research efforts, however, are substantial in some subthemes and others are areas of growth. Faculty capacity in community health and family services, food insecurity, public education, climate change resilience, environmental quality, community development, state and local finance, program and policy evaluation of social policies, and open space planning are substantial and potentially affect state and local governments. The Human Rights Institute is mobilizing faculty members to consider urban equities as a question of rights, specifically, economic and social rights.

But in other areas, including urban politics, housing policy, urban planning, non-profit organizations, public safety, and city management, research at UConn is somewhat limited, aside from individual faculty projects. All of these areas would benefit from an ethnic/racial focus to the work and research on cities outside the US. Comparative public administration and policy provides another avenue for enhancing the global reach of UConn. While research efforts are somewhat limited, UConn graduates in Urban and Community Studies, Social Work, Public Administration and Policy, Human Development and Family Sciences, Allied Health Sciences, Civil Engineering, Landscape Architecture, Law, and Political Science pursue careers related to this theme, and a wealth of internship and service-learning opportunities exist for UConn students. UConn thereby partially fulfills its mission to meet a labor force need in the state, but a more robust support is needed to enhance research capacity on contemporary urban challenges and strengthen academic programs.

Table 8: UConn Institutes and Centers Relevant to Governance and Urban Services

- Center of Applied Research in Human Development
- Human Rights Institute

IV. UConn Research and Teaching Activities in the Hartford Community

The presence of the Sustainable Global Cities Initiative (SGCI) at the Hartford Campus provides an opportunity to deepen research in the context of the city. UConn had a significant degree of involvement in the Hartford region prior to its relocation to center city, but a notable expansion in activities can be observed.

This overview of UConn's involvement in Hartford includes not only examples of faculty scholarship but also of faculty members engaging students, often enrolled in formal courses, in Hartford activities. For example, the Office of Service Learning is particularly active, drawing on UConn courses to place students in urban service projects associated with a broad range of topics, often with external government and non-governmental partners, including the Connecticut Brownfields Initiative, the Hartford Climate Action Plan, the Safe Streets Grant, the INVEST Health Project, and many other high-level programs. Husky Sport, a collaborative partnership of multiple UConn units, public schools, and community entities, has worked in Hartford's North End since 2003 promoting education, mentorship,

and nutrition assistance for disadvantaged youth. The Department of History is also engaged with projects involving the oral histories of various migrant groups, including West Indian and Caribbean residents of the area. The School of Social Work collaborates with the Connecticut Coalition to End Homelessness, as part of the larger State Homeless Prevention Initiative. Several other engagement opportunities are leveraged by UConn units, including the Schools of Business, Law, and Engineering and the Neag School of Education.

UConn's collaborative efforts in the region fall under several of the research themes discussed above, primarily People and the City, Healthy Cities, and Social-Ecological Systems. The theme of Governance and Urban Services is addressed through the Department of Public Policy's Internship and Professional Practice program, which places student interns in various government and non-profit organizations located in and around Hartford for an academic year, complementing their studies. The themes of Economic Development and Built Environment have also benefited from a limited number of UConn-sponsored projects. However, while the Office of Service Learning has been successful in matching undergraduate students with collaborative efforts in a wide array of programs and topics, many of these projects are short-term in nature, constraining the viability of consistent, durable relationship and capacity building between UConn and partner stakeholders.

The establishment of a dedicated research center at UConn Hartford is expected to amplify these research and teaching activities, resulting in greater consistency and focus on network-building among local entities engaged in improving the quality of life in Hartford.

¹ The survey of UConn research capacity involved Lucy Adjei and Alisher Ganiev, Graduate Research Assistants in the School of Business. An early version of the paper benefited from comments by Michael Accorsi, Mohamad Alkadry, Maria Chrysochoou, Kristen Cooksey Stowers, Michael Fendrich, Kathy Libal, Mark Overmyer-Velázquez, Mark Robbins, and Michael Willig. The themes in this Working Paper will be further elaborated by Faculty Affiliates in 2020.

² *Sustainable Urban Systems: Articulating a Long-Term Convergence Research Agenda* (2018), A Report of the Advisory Committee For Environmental Research and Education, US National Science Foundation, prepared for the Sustainable Urban Systems Subcommittee; See C40 Cities Climate Leadership Group <https://www.c40.org>; The World Bank, "Urban Development" <https://www.worldbank.org/en/topic/urbandevelopment>; UN-Habitat "We Work for a Better Urban Future," <https://new.unhabitat.org>; United Nations, "Sustainable Development Goals," (2015), <https://sustainabledevelopment.un.org/?menu=1300>; United Nations Environment Programme, "Cities," <https://www.unenvironment.org/explore-topics/resource-efficiency/what-we-do/cities>.

³ John T. Cumbler, *Reasonable Use: The People the Environment and the State, New England 1790-1930* (New York: Oxford University Press, 2001), "Cities and Industries, Sewage and Waste," 49-62.

⁴ Paula Braveman (2014), "What Are Health Disparities and Health Equity? We Need to Be Clear," Public Health Report 129 (Suppl 2): 5-8. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3863701/>.

⁵ A review of the urban-related research resources at the UConn School of Medicine is beyond the scope of this study.