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Rethinking the Geography of Local Climate Action: Multilevel Network Participation in Metropolitan Regions

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RETHINKING THE GEOGRAPHY OF LOCAL CLIMATE ACTION: MULTILEVEL NETWORK PARTICIPATION IN METROPOLITAN REGIONS

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Abstract

As the United States and the world become increasingly urbanized, cities are a key site for addressing the problem of climate change. However, urban climate change action is not simply about local officials making decisions within their cities. In major U.S. urban areas, "local" involves multiple layers of government, including county and metro-regional entities. Moreover, many of the cities taking action on climate change also participate in and shape networks of local governments based at state, regional, national, and international levels.

This Article argues that multilevel climate change networks could be more effective by embracing this geography of local action and the pressing need to foster action by suburban cities. Most emissions take

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place in the suburban areas of metro regions, but these networks generally do not focus on the particular needs of different types of suburban cities. This Article provides a novel analysis of patterns of participation in climate change networks by cities in six major U.S. metropolitan regions—Atlanta, Chicago, Denver, New York, San Francisco, and the Twin Cities—as a basis for proposing practical strategies and areas for future research. It considers what types of cities participate in which networks and where stronger and weaker network interlinkages occur. The Article concludes that networks inadequately (1) differentiate by city and metro-regional type and (2) coordinate resources and strategies. It suggests ways in which networks could do so to maximize the number of cities participating in them and the participation level of those cities.

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I. INTRODUCTION

Urban action is critical to addressing climate change. Over half the world's population and more than 82% of the U.S. population lives in cities.[1] Cities and their power plants are the largest human-created sources of greenhouse gas emissions, producing at least 70% of the world's fossil fuel carbon dioxide emissions.[2] No effective strategy for controlling emissions or adapting to impacts can ignore such a substantial part of the population. Many important climate change policy decisions are made at a local level as part of urban land use planning.

However, what the local level means can be complex in the urban context. Major center cities that lead the charge on climate change are part of metropolitan regions in which action on climate change is quite varied. For example, in the Twin Cities, the center cities of Minneapolis and St. Paul contain less than a quarter of the metropolitan region's population of almost three million people.[3] An effective local strategy for addressing climate change depends not only on those center cities taking action, but also smaller suburban ones doing so as well, ideally in a manner coordinated at county and metro-regional local scales.

This need for local action and its complexity has not been lost on mayors, city and county officials, and members of metropolitan regional councils. As international climate change negotiations continue to fail to solve this problem, a growing number of cities around the world play increasingly critical roles in multilevel efforts to address climate change. They influence the language in the climate change treaty negotiations, form their own transnational agreements, and use their local governmental power to make commitments that often exceed those of their nation-states. Multilevel networks—at local, state, regional, national, and international levels—help to foster local action. These networks provide models and frameworks for cities to use in developing their policies and opportunities for local climate change leaders to connect with one another.[4]

But such networks face limitations that constrain their impacts. First, not enough cities participate in them, especially in the suburbs. For example, the 1,060

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[1] *See* U.S. Cent. Intelligence Agency, *Urbanization*, THE WORLD FACTBOOK, https://www.cia.gov/library/publications/the-world-factbook/fields/2212.html, *archived at* http://perma.cc/YE39-T87R (last visited Oct. 5, 2014).

[2] *Megacities Carbon Project*, *Why Are Cities Important?*, CAL. INST. OF TECH. NASA JET PROPULSION LAB., https://megacities.jpl.nasa.gov/portal/page/motivation/cities-matter, *archived at* http://perma.cc/TX86-HE57 (last visited Feb. 15, 2015).

[3] In 2013, the Twin Cities Metropolitan Region had a population of 2,951,000; Minneapolis had a population of 401,000, and St. Paul had a population of 296,500. The population of Minneapolis and St. Paul together was therefore 23.6% of the overall metro region's population. Metro. Council, *Population Growth Across the Region: The Twin Cities in 2013*, METROSTATS (July 2014), http://metrocouncil.org/getattachment/b09e532c-ca54-4452-b913-34116bfec037/.aspx, *archived at* http://perma.cc/JTN2-WFH4.

[4] For examples of these networks and a discussion of their development, see *infra* Part II.

U.S. mayors that have joined the U.S. Mayors Climate Protection Agreement (Mayors Agreement) represent only about 5% of U.S. cities and 28% of the total U.S. population.[5] Second, the networks often have insufficient connection with one another. Many networks offer overlapping, but uncoordinated, resources that create inefficiencies for cities joining multiple networks. While the Mayors Agreement cities made parallel commitments in the Copenhagen City Climate Catalogue, this type of interlinking is rare. Even leader cities—which take early action on climate change and collaborate with other cities in doing so—will join some transnational local agreements, but not others, and participate unevenly in international, national, regional, and state networks.[6] Third, many networks differentiate among types of cities insufficiently. While some networks will highlight small versus large cities, they generally do not consider the diversity of cities within a metropolitan region or how to align climate change policies with cities' varying needs; center cities, stressed inner suburbs, affluent and developed job-center suburbs, and outer-ring and often rapidly growing developing job centers and bedroom communities vary in multiple ways that affect their mitigation and adaptation possibilities and trajectories.[7]

This Article provides a novel empirical analysis of multilevel climate network participation in six geographically diverse U.S. metro regions—Atlanta, Chicago, Denver, New York, San Francisco, and the Twin Cities—to consider how these networks could overcome such limitations.[8] Theoretically, the Article interweaves

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[5] As of October 24, 2013, 1,060 mayors, representing a total population of 88,962,982 citizens, had joined the Mayors Agreement. Mayors Climate Prot. Ctr., *List of Participating Mayors*, U.S. CONFERENCE OF MAYORS [hereinafter Mayors Climate Prot. Ctr., *List of Participating Mayors*], http://usmayors.org/climateprotection/list.asp, *archived at* http://perma.cc/WL5-FWPU (last visited Oct. 5, 2014). The U.S. Census Bureau estimated that the total U.S. population on that date was 316,911,323. U.S. Census Bureau, *U.S. and World Population Clock*, POPULATION CLOCK, http://www.census.gov/popclock/, *archived at* http://perma.cc/M97H-G526 (last visited Oct. 5, 2014) (under "The United States population on [date]" click "Select a Date" link and select "October 24, 2013").

[6] *See infra* Part III.

[7] *See* Hari M. Osofsky, *Suburban Climate Change Efforts: Possibilities for Small and Nimble Cities Participating in State, Regional, National, and International Networks*, 22 CORNELL J. L. & PUB. POL'Y 395, 439–40 (2012) [hereinafter Osofsky, *Suburban Climate Change Efforts*]; *see also infra* Part II.

[8] *See* Hari M. Osofsky, *Is Climate Change "International"? Litigation's Diagonal Regulatory Role*, 49 VA. J. INT'L L. 585 (2009); Hari M. Osofsky, Symposium, *Local Approaches to Transnational Corporate Responsibility: Mapping the Role of Subnational Climate Change Litigation*, 20 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 143 (2007); Hari M. Osofsky, *Multiscalar Governance and Climate Change: Reflections on the Role of States and Cities at Copenhagen*, 25 MD. J. INT'L L. 64 (2010); Hari M. Osofsky, *Scaling "Local": The Implications of Greenhouse Gas Regulation in San Bernardino County*, 30 MICH. J. INT'L L. 689 (2009); Osofsky, *Suburban Climate Change Efforts*, *supra* note 7; Hari M. Osofsky & Janet Koven Levit, *The Scale of Networks?: Local Climate Change Coalitions*, 8 CHI. J. INT'L L. 409 (2008).

scholarship from law and geography to produce a model for understanding these networks' geographic and governance roles. The model draws particularly from the work of geographer Kevin Cox to argue that these networks not only help to construct the nature of climate change action at a local scale, but also are constructed by the localities that participate in them and the levels of governance at which they operate.[9] This complex geography allows them to affect mitigation and adaptation efforts at multiple scales: the local scale at which their members operate; the governance level at which they are constituted; and other scales, such as the global one, that they work to influence.

Practically, the Article considers how these networks could be more effective in encouraging additional local action on climate change. It provides an innovative assessment of what these networks do and of patterns of urban participation in them—by city type—in the six exemplar U.S. metropolitan regions. Using an approach that combines urban geography with network analysis, this Article outlines particular strategies for how networks could overcome the three limitations highlighted above by developing additional resources targeted at different types of cities and by increasing coordination and collaboration.

Part II serves as the conceptual core of the Article, providing a theory for understanding the multiscalar aspects of local climate action. Part III then considers the roles that multilevel climate change networks play in fostering local action through an examination of key networks at each level. Part IV analyzes local network participation in the Atlanta, Chicago, Denver, New York City, San Francisco, and Twin Cities metro regions. It considers patterns of participation both in terms of city type and cross-network interaction. Part V concludes by proposing strategies based on this analysis for networks to reach more cities and encourage more action in participating cities.

II. THE SCALE OF "LOCAL" CLIMATE CHANGE ACTION

This Part provides the conceptual framework for the Article by exploring what "local" is and how that should shape law and policy strategies on local climate change action. It focuses on the multiscalar character of local action to develop principles for addressing the participation gap more effectively. The Part brings together law with the discipline of geography, especially urban and critical geography, to provide a tool for understanding patterns of local behavior and how they might relate to cities' decisions on mitigation and adaptation.

In so doing, this Part builds upon the conceptual analysis of my prior article, *Suburban Climate Change Efforts: Possibilities for Small and Nimble Cities Participating in State, Regional, National, and International Networks*.[10] That paper

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[9] *See* Kevin R. Cox, *Spaces of Dependence, Spaces of Engagement and the Politics of Scale, or: Looking for Local Politics*, 17 POL. GEOGRAPHY 1, 2 (1998) [hereinafter Cox, *Spaces of Dependence*].

[10] *See* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7.

brought together scholarship on localities and climate change, metro-regional demography, international network theory, and polycentric/pluralist governance theory to explore how to encourage more suburban action on climate change.[11] It then applied this framework to twelve Twin Cities' suburbs in different demographic categories that were all taking some action on climate change.[12]

This Part adds to that analysis by showing how a deeper understanding of localities and the networks in which they participate can help to shape a geographically sensitive model for local climate action. It considers three dimensions of local geography: its multiple scales, its organization into metro regions, and the network dynamics that help constitute "local." The Part draws from these dimensions to propose principles for analyzing local climate action. The rest of the Article then applies this conceptual approach to data from cities in six major metropolitan regions to propose strategies for encouraging a greater number of cities to do more.

A. Why "Local" Action Is Not Just Local

With the vast majority of the U.S. population living in cities and such a low percentage of cities actively participating in climate change networks, more local action is clearly needed. Fostering local action, however, requires first understanding what "local" is.

Answering this question is complicated for two primary reasons. First, the category of local includes a diverse set of entities. Cities, counties, and metropolitan councils are all local government units, and the larger-scale of them have other local government units within them. Moreover, these local governments vary greatly in physical size, population, and demographic characteristics. Understanding how these local structures intersect and the particular needs of each type of entity and the people within it is critical to effective mitigation and adaptation planning.[13]

Second, local decisions are not made purely within that locality. Localities have to balance between their local autonomous control and the constraints that other levels put upon them. For example, the law varies from state to state on whether cities can mandate energy efficiency standards that exceed state ones. Local entities also participate in local, state, regional, national, and international networks—the subject of this Article—some of which focus on topics relevant to climate change.

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[11] *See id.* at 401–11.

[12] *See id.* at 411–41.

[13] Gerald E. Frug and David J. Barron describe cities "as simultaneously subordinate domestic governments and independent international actors." *See* Gerald E. Frug & David J. Barron, *International Local Government Law*, 38 URB. LAW. 1, 2 (2006)*; see also* Keith Aoki, et al., *(In)visible Cities: Three Local Government Models and Immigration Regulation*, 10 OR. REV. INT'L L. 453, 472–78 (2008) (analyzing Frug and Barron's ideas' applicability to immigration).

Those interactions among localities shape decisionmaking deeply, even if agreements made through such networks tend to be voluntary.[14]

Effective strategies for fostering local climate change action need to take these complexities of scale into account. Each local entity has core local-scale powers relevant to climate change and particularized local needs tied to socioeconomics, culture, and geography. Understanding these powers and needs can help shape strategies for motivating climate action. At the same time, these local entities make choices through interactions with governmental and nongovernmental actors at other levels, including climate networks. Increasing conscious interconnectivity of and synergy among networks would maximize their impact.

B. Implications of the Evolving Geography of Metro Regions

This Article focuses on a particular aspect of this multiscalar local geography: metro regions and the diverse characteristics and spatiality of the cities within them. Although the climate change literature often focuses on major center cities,[15] metro regions that surround and contain them have a much broader urban footprint than their core well-known cities. Geographers such as Peter Muller have traced the evolution of urban regions into polycentric, multinodal complex systems in which suburban minicities and technopoles participate in global economic networks.[16]

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[14] I have explored some of these dynamics in the sources cited *supra* note 8. *See also* Judith Resnik et al., *Ratifying Kyoto at the Local Level: Sovereigntism, Federalism, and Translocal Organizations of Government Actors (TOGAs)*, 50 ARIZ. L. REV. 709, 726–33, 764 (2008) (analyzing the many TOGAs working on climate change and their current and potential roles in shaping federal policy).

[15] *See, e.g.*, Melissa Powers, *US Municipal Climate Plans: What Role Will Cities Play in Climate Change Mitigation?*, *in* LOCAL CLIMATE CHANGE LAW: ENVIRONMENTAL REGULATION IN CITIES AND OTHER LOCALITIES 134, 140–44 (Benjamin J. Richardson ed., 2012) (comparing the efforts of several U.S. localities); David Dodman, *Blaming Cities for Climate Change? An Analysis of Urban Greenhouse Gas Emissions Inventories*, 21 ENV'T & URBANIZATION 185, 189 (2009) (comparing greenhouse gas emissions of eleven cities in Europe, North America, South America, and Asia); Osofsky & Levit, *supra* note 8, at 414–15 (comparing the development of climate change efforts in Portland and Tulsa); Heike Schroeder & Harriet Bulkeley, *Global Cities and the Governance of Climate Change: What Is the Role of Law in Cities?*, 36 FORDHAM URB. L.J. 313, 351–59 (2009) (comparing urban climate change governance approaches in London and Los Angeles).

[16] For discussion of the classic U.S. urban geography literature on this issue, see generally John R. Borchert, *America's Changing Metropolitan Regions*, 62 ANNALS ASS'N AM. GEOGRAPHERS 352 (1972) (citing ROBERT E. DICKINSON, CITY REGION AND REGIONALISM (1947); ROBERT E. DICKINSON, CITY AND REGION (1964); OTIS DUDLEY DUNCAN, ET AL., METROPOLIS AND REGION (1960)); and BEVERLY DUNCAN & STANLEY LIEBERSON, METROPOLIS AND REGION IN TRANSITION (1970)). Peter Muller has discussed the complex spatial evolution of urban metropolitan regions as they have become polycentric participants in globalization. *See* PETER O. MULLER, CONTEMPORARY SUBURBAN AMERICA (1981) [hereinafter MULLER, CONTEMPORARY SUBURBAN AMERICA] (analyzing the

Muller has described the ways in which suburban development roughly tracks transportation technology development from the Walking-Horsecar Era through the 1880s, to the Electric Streetcar Era through 1920, to the Recreational Automobile Era through 1945, to the modern Freeway Era.[17] He also has explained that the Freeway Era has resulted in five growth stages of the suburbs: (1) bedroom community, (2) independence, (3) catalytic growth, (4) high rise/technology, and (5) mature urban centers.[18] Each of the six metropolitan regions that are the focus of this Article is a mature urban center that has gone through its own variation of these stages of development.[19]

This Article argues that understanding a city's positionality within a metro region can help shape strategies for encouraging it to do more on climate change. As noted in my prior article *Suburban Climate Change Efforts*, most analyses of local climate action, particularly ones focused on suburbs, do not incorporate the variation among cities within metro regions into their approaches.[20] There is a wide variety of scholarship analyzing the types of actions cities can take and are taking,[21] many of

development of suburbs and metro regions); Peter O. Muller, *The Suburban Transformation of the Globalizing American City*, 551 ANNALS AM. ACAD. POL. & SOC. SCI. 44 (1997) (examining the complex spatial evolution of urban metropolitan regions as they have become polycentric participants in globalization); Peter O. Muller, *Transportation and Urban Form: Stages in the Spatial Evolution of the American Metropolis*, *in* THE GEOGRAPHY OF URBAN TRANSPORTATION 59 (Susan Hanson & Genevieve Giuliano eds., 3d ed. 2004) [hereinafter Muller, *Transportation and Urban Form*] (considering stages in the interrelated development of urban transportation and metro regions). Other scholars have also addressed the complex spatial evolution of urban metropolitan regions. *See, e.g.*, David J. Barron, *Reclaiming Home Rule*, 116 HARV. L. REV. 225. (2003) (analyzing possibilities for innovation in scaling and structuring governance in metropolitan regions; Gerald E. Frug, *Beyond Regional Government*, 115 HARV. L. REV. 1763 (2002) (same).

[17] *See* MULLER, CONTEMPORARY SUBURBAN AMERICA *supra* note 16, at 26–49.

[18] *See* Muller, *Transportation and Urban Form*, *supra* note 16, at 80–81; *see also* Audrey Singer, *Twenty-First-Century Gateways: An Introduction*, *in* TWENTY-FIRST CENTURY GATEWAYS: IMMIGRANT INCORPORATION IN SUBURBAN AMERICA 15 (Audrey Singer et al. eds., 2008) (analyzing the evolving spatial distribution of immigrants in suburbs).

[19] Muller, *Transportation and the Urban Form*, *supra* note 16, at 80–81; *see* MULLER, CONTEMPORARY SUBURBAN AMERICA, *supra* note 16, at 26–49.

[20] Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 411.

[21] *See* REID EWING ET AL., GROWING COOLER: THE EVIDENCE ON URBAN DEVELOPMENT AND CLIMATE CHANGE 27–31, 35–36 (Urban Land Institute eds., 2008); Kirsten Engel, *State and Local Climate Change Initiatives: What Is Motivating State and Local Governments to Address a Global Problem and What Does This Say About Federalism and Environmental Law?*, 38 URB. LAW. 1015, 1023–25 (2006); Alice Kaswan, *Climate Change, Consumption, and Cities*, 36 FORDHAM URB. L.J. 253, 280–83, 296 (2009); Katherine A. Trisolini, *All Hands on Deck: Local Governments and the Potential for Bidirectional Climate Change Regulation*, 62 STAN. L. REV. 669, 735, 743–45 (2010); Michael Burger, *Empowering Local Autonomy and Encouraging Experimentation in*

which focus on what major center cities are doing. Those pieces that address the suburbs largely treat them as an undifferentiated category[22] and critique their unsustainable land use patterns and larger carbon footprints.[23] Their solutions tend

Climate Change Governance: The Case for a Layered Regime, 39 ENVTL. L. REP. NEWS & ANALYSIS 11161, 11164–65 (2009).

[22] *See, e.g.*, EWING ET AL., *supra* note 21, at 67–73 (exploring possibilities for compact development can reduce vehicle miles traveled, including in a suburban context); Edna Sussman et al., *Climate Change Adaptation: Fostering Progress Through Law and Regulation*, 18 N.Y.U. ENVTL. L.J. 55, 109–10 (2010) (discussing New York suburbs' initiatives on smart growth, California's efforts at regional planning, and adaptation implications of them); Dan Tarlock, *Fat and Fried: Linking Land Use Law, The Risks of Obesity, and Climate Change*, 3 PITT. J. ENVTL PUB. HEALTH L. 31, 39 (2009) (examining possibilities for land use strategies to work in both cities and suburbs); Trisolini, *supra* note 21, at 715–16 (indicating that many of the cities choosing to adapt Smart Code were suburbs and exurbs in the South). Although there have long been more nuanced analyses of suburbs, see for example, Darcy Seaver, *Conference Explores Older Suburbs as Regional Pivot Points*, THE FREE LIBRARY, http://www.thefreelibrary.com/Conference+Explores+Older+Suburbs+as+Regional+Pivot+Points.-a054032273, *archived at* http://perma.cc/Z6N8-S5V5 (last visited Oct. 20, 2014) (a 1999 conference at the University of Minnesota on first-ring suburbs), these are rarely incorporated into the legal literature on suburbs and climate change.

[23] For examples of the literature on cities, suburbs, and sustainable land use, see John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1, 3 n.16, 8–9 (2009) (citing EWING ET AL., *supra* note 21) (relying on Ewing's work demonstrating the lower carbon footprint of Chicago's center city as compared to its suburbs and suggesting strategies urban areas can use to reduce their carbon footprint); J.B. Ruhl, *Taming the Suburban Amoeba in the Ecosystem Age: Some Do's and Don'ts*, 3 WIDENER L. SYMP. J. 61, 75, 78–86 (1998) (proposing ten principles for law's role in fostering sustainable suburban development with suburban development in Austin, Texas as a case example); Patricia E. Salkin, *Sustainability and Land Use Planning: Greening State and Local Land Use Plans and Regulations to Address Climate Change Challenges and Preserve Resources for Future Generations*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 121, 124–25 (2009) (exploring various approaches that state and local governments can use to increase sustainability and mitigate climate change). For examples of articles looking at the nexus of suburbs, racial segregation, and climate change, see Alice Kaswan, *Climate Change, Consumption, and Cities*, *supra* note 21, at 253 (considering the role of land use measures and federal measures in addressing the city-suburb divide and reducing vehicle miles traveled and the need to integrate the socioeconomic and environmental concerns in local land use planning); James A. Kushner, *Affordable Housing as Infrastructure in the Time of Global Warming*, 43 URB. LAW. 179, 182, 197–200 (2010) (presenting an approach to smart growth that would address both climate change and segregation simultaneously); Bekah Mandell, *Racial Reification and Global Warming: A Truly Inconvenient Truth*, 28 B.C. THIRD WORLD L.J. 289, 304–05, 335–42 (2008) (analyzing the contribution of city-suburb to climate change); Florence Wagman Roisman, *Sustainable Development in Suburbs and Their Cities: The Environmental and Financial Imperatives of Racial, Ethnic, and Economic Inclusion*, 3 WIDENER L. SYMP. J. 87 (1998) (exploring how racial and ethnic segregation undermine sustainability).

to focus on how to limit sprawl or approach smart growth,[24] strategies that apply to some types of suburbs well but not others. Even some of the most spatially sophisticated scholarship, which maps emissions patterns throughout metropolitan regions, does not explore how a more finely grained focus on city type might illuminate possibilities for greater action. These studies focus on physical spatial variation without considering the ways legally constructed jurisdictional divisions within metro regions define the geography of climate change action.[25]

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[24] For a few interesting examples from the voluminous literature on sprawl, see generally William W. Buzbee, *Urban Sprawl, Federalism, and the Problem of Institutional Complexity*, 68 FORDHAM L. REV. 57 (1999) (exploring sprawl as a multilevel governance challenge and how conditional federal funding might help ameliorate it); Reid Ewing & Fang Rong, *The Impact of Urban Form on U.S. Residential Energy Use*, 19 HOUSING POL'Y DEBATE 1 (2008) (analyzing how urban form effects residential energy use); Nicole Stelle Garnett, *Save the Cities, Stop the Suburbs?*, 116 YALE L.J. 598 (2006) (reviewing recent books that focus on debates over urban growth restrictions); Christian Iaione, *The Tragedy of Urban Roads: Saving Cities from Choking, Calling on Citizens to Combat Climate Change*, 37 FORDHAM URB. L.J. 889, 896–905 (2010) (arguing for market-based approaches and demand-side approaches, rather than supply expansion, as a better strategy for addressing traffic congestion); Christine A. Klein, *The New Nuisance: An Antidote to Wetland Loss, Sprawl, and Global Warming*, 48 B.C. L. REV. 1155 (2007) (surveying the impact of *Lucas v. South Carolina Coastal Council* on regulations restricting wetland filling, sprawling development, and greenhouse gases emissions); Alexandra Lampert, *California's Fight Against Global Warming: Finally Getting Smart About Sprawl?*, 20 STAN. L. & POL'Y REV. 193 (2009) (describing California's Senate Bill 375 as a small step forward in curbing urban sprawl); Mary D. Nichols, *Sustainable Communities for a Sustainable State: California's Efforts to Curb Sprawl and Cut Global Warming Emissions*, 12 VT. J. ENVTL. L. 185 (2010) (discussing California's Senate Bill 375 as an example of addressing sprawl and climate change through metro-regional land use planning approaches); J.B. Ruhl & James Salzman, *Climate Change, Dead Zones, and Massive Problems in the Administrative State: A Guide for Whittling Away*, 98 CALIF. L. REV. 59 (2010) (discussing how complex sprawl is to understand and address).

[25] For examples of metropolitan-focused analyses in climate change mitigation, see MARILYN A. BROWN ET AL., SHRINKING THE CARBON FOOTPRINT OF METROPOLITAN AMERICA, 7–11 (Brookings Inst. ed., 2008), *available at* http://www.brookings.edu/~/media/research/files/reports/2008/5/carbon%20footprint%20sarzynski/carbonfootprint_brief.pdf, *archived at* http://perma.cc/XJ59-TZCQ (arguing that federal policy leadership is needed to complement state and local efforts on metropolitan emissions); PATRICK M. CONDON ET AL., URBAN PLANNING TOOLS FOR CLIMATE CHANGE MITIGATION 20–42 (Lincoln Inst. of Land Policy ed., 2009), *available at* http://www.dcs.sala.ubc.ca/docs/lincoln_tools%20_for_climate%20change%20final_sec.pdf, *archived at* http://perma.cc/YAD9-EVH2 (illustrating how various modeling tools can help in the planning process to reduce carbon footprints of new development); Yonn Dierwechter, *Metropolitan Geographies of US Climate Action: Cities, Suburbs, and the Local Divide in Global Responsibilities*, 12 J. ENVTL. POL'Y & PLAN. 59, 79 (2010) (analyzing city-suburb dynamics in six U.S. metropolitan regions, but without detailed comparison of individual suburban cities); Edward L. Glaeser & Matthew E. Kahn, *The Greenness of Cities: Carbon Dioxide Emissions and Urban Development* 8–25 (Taubman Ctr. for State & Local Gov't, WP-2008-07),

In *Suburban Climate Change Efforts*, I demonstrate how the work of Myron Orfield—at times in collaboration with Thomas Luce—on the demography of metro regions might be brought to bear on analyses of local climate change action.[26] Their work maps the different types of cities in metro regions by combining Geographic Information Systems (GIS) technology with demographic data.[27] This type of mapping could be useful in identifying how climate change action might be paired with other local priorities—such as urban redevelopment or growth management—and what kinds of support particular cities likely need to take action. Using examples of action by different types of leader suburbs in the Twin Cities, that article showed how efforts seemed to vary by city type and how that variation could be used strategically.[28]

This Article takes the next step in that analysis by considering how climate change networks could be more effective in metro regions. It explores the types of climate change networks in which cities within major metro regions in different U.S. regions participate and how membership varies across different types of cities within these metro regions. It then uses this assessment to consider where opportunities lie for networks to be more effective in the way in which they target different types of cities and in which they collaborate with one another. In so doing, this extended case study provides a model for how metro-regional data can be used to inform local climate strategies.

C. The Role of Multiscalar Networks in Local Action

The urban geography literature discussed in the prior sections reinforces the importance of creating a multiscalar model of urban climate action that identifies (1) the particular characteristics of different types of localities and (2) the core relationships that help to constitute these localities and their choices. Each city within a metro region is both its own contained urban space with a relatively autonomous governing entity and part of this larger landscape of metro-regional evolution. Thinking locally requires simultaneously understanding each of the local scales—from city to county to metro region—and how they interact with each other and with state, national, international, and regional scales.

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available at http://www.hks.harvard.edu/var/ezp_site/storage/fckeditor/file/pdfs/centers-programs/centers/taubman/working_papers/glaeser_08_greencities.pdf, *archived at* http://perma.cc/J3XN-9LSE (exploring how metropolitan emissions patterns vary across metropolitan areas and the differences between city-suburb dynamics). For an example of a study focusing on suburban climate change action, see Sarah E. Knuth, *Addressing Place in Climate Change Mitigation: Reducing Emissions in a Suburban Landscape*, 30 APPLIED GEOGRAPHY 518, 520–29 (2010) (providing a case study of efforts by a wealthy suburban county to develop a climate change mitigation plan in a wealthy suburban county).

[26] *See* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 406–12.

[27] MYRON ORFIELD, AMERICAN METROPOLITICS: THE NEW SUBURBAN REALITY 46–48 (Brookings Inst. ed., 2002).

[28] *See* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 452–54.

This section focuses in particular on Cox's analysis of the nature of the local scale because its unpacking of intra- and inter-level spatial networks provides an especially helpful lens through which to view local climate action and network participation.[29] Cox envisions core local functions interacting across multiscalar networks by introducing what he terms "spaces of dependence" and "spaces of engagement."[30] Cox's "[s]paces of dependence are defined by those more-or-less localized social relations upon which we depend for the realization of essential interests and for which there are no substitutes elsewhere; they define place-specific conditions for our material well being and sense of significance."[31] In the context of local climate action, such spaces include the local bodies that decide the myriad of land use planning, energy, environmental, and water policy questions related to mitigation and adaption, as well as the more informal community forums and gatherings that take place on a regular basis within local places.[32]

Spaces of engagement, in contrast, are "the space[s] in which the politics of securing a space of dependence unfold[]."[33] In this context, these would include—among others—the real and virtual meetings of the various climate networks described in Part III, the Conference of the Parties negotiations of the United Nations Framework Convention on Climate Change, and the other interactions that the same cities have in networks and organizations unrelated to climate change. They also would include press coverage of those events, governmental reactions to them, etc. Cox explains that these many spaces of dependence and engagement interact: "[p]eople, firms, state agencies, etc., organize in order to secure the conditions for the continued existence of their spaces of dependence but in so doing they have to engage with other centers of social power: local government, the national press, perhaps the *inter*national press, for example."[34] This organizing and use of polycentric power sources is evident throughout the Article.

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[29] I have drawn heavily from Cox in earlier scholarship on scalar issues in climate change regulation.

[30] Cox, *Spaces of Dependence*, *supra* note 9, at 2. For scholarship reviewing Cox's approach, see Katherine T. Jones, *Scale as Epistemology*, 17 POL. GEOGRAPHY 25 (1998); Dennis R. Judd, *The Case of the Missing Scales: A Commentary on Cox*, 17 POL. GEOGRAPHY 29 (1998); Michael Peter Smith, *Looking for the Global Spaces in Local Politics*, 17 POL. GEOGRAPHY 35 (1998); Lynn A. Staeheli, *Globalization and the Scales of Citizenship*, 19 GEOGRAPHY RES. F. 60 (1999). Cox responded to those reviews. *See* Kevin R. Cox, *Representation and Power in the Politics of Scale*, 17 POL. GEOGRAPHY 41 (1998).

[31] *See* Cox, *Spaces of Dependence*, *supra* note 9, at 2.

[32] Who or what the regulators are can also have an important impact on the spaces. In a very different substantive context, for example, Professor Steven Ratner explores the differential legal and political treatment of occupation by states and administration by international organizations. *See* Steven R. Ratner, *Foreign Occupation and International Territorial Administration: The Challenges of Convergence*, 16 EUR. J. INT'L L. 695 (2005).

[33] Cox, *Spaces of Dependence*, *supra* note 9, at 2.

[34] *Id.*

Network dynamics, in particular, play a crucial role in this Article's analysis, and Cox's work provides a helpful way to envision complex scalar dynamics in network terms. Cox describes the ways in which networks move through the traditional boundaries of governments. He explains:

> Networks signify unevenness in the penetration of areal forms. They are also rarely entirely contained by areal forms; boundaries tend to be porous. The territorial reach of state agencies is imperfect. Even in the case of the most totalitarian of states, there are always spaces of resistance. The same applies to other agents with territorially defined powers like the utilities, political parties and labor unions. To be sure, they all enjoy power, in the sense of rights, with respect to particular bounded areas or enclosures, but it is a *formal* power which is affected in its actual application by contingent conditions. Conversely, agents, in the associations that they can form and indeed do form, are by no means limited by particular enclosures. Local government policies can be appealed to higher levels of authority. Networks of association are created across national boundaries, as in the fight against apartheid.[35]

Seen in these terms, local climate action involves a constant push and pull among formal and informal associational networks within and across scales. Cox's work helps to illuminate the complexity of each scale and interactions across them in each of the metro regions that this Article examines.

The Article draws from Cox's approach throughout its analysis, which is guided by key principles introduced in the following section. In Part III, it describes the multidimensional, and often multiscalar, ties of each of the exemplar networks. Then, Part IV's exploration of metro regions and networks considers (1) how each metro region is constituted and (2) the network ties of different types of cities within it. These two parts then become the basis for the Article's proposal for increasing network penetration in major metropolitan regions.

D. Conceptualizing the Geography of Local Climate Change Network Participation

The rest of this Article analyzes the role of multilevel climate change networks in local climate action. This section draws from the previous three to provide a framework for doing so. The insights from geography scholarship reveal the scalar complexity of localities and the ostensibly local decisions that they are making about climate change. For the purposes of this Article's more specific focus on network participation, it is important to understand the geography of the networks and of the localities that comprise them as put forward in this Article's two core principles.

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[35] Cox, *Spaces of Dependence*, *supra* note 9, at 2–3.

Principle 1 (Network Geography): Translocal climate change networks have geographic characteristics that influence how they operate and the effectiveness of their efforts. Understanding these characteristics is critical to enhancing their role in fostering local action.

The climate change networks studied in this Article are all multiscalar, but they constitute themselves at particular levels ranging from local to international. All of the networks have local participants (and some have sublocal participants), but the geography of which cities participate in each network varies. Regardless of the level at which they are constituted, many of the networks also frame themselves explicitly within international and national climate change negotiations and debates. This Article analyzes the geography of these networks and their participants in order to consider possible synergies that might help foster more local climate change action.

Principle 2 (Local Geography): The cities participating in translocal climate change networks often are based in local metropolitan regions and have varying geographic characteristics and roles within those regions. Understanding this positionality is crucial to fostering more action by individual cities.

Although individual cities are signing up for each of the networks discussed in this Article, they are located within local metropolitan regions and vary significantly in their geographic characteristics and roles in those regions. The model that this Article develops also focuses on understanding this local geography. Exploring these characteristics can help identify which groups are participating less and what kind of appeals might be more effective. The Article delineates participation patterns across six major U.S. metropolitan regions to display that geography and to provide the basis both for getting those already participating to do more and for adding new network participants.

The Parts that follow use these principles to consider the multiscalar patterns of network development and participation and their implications. These patterns provide the basis for turning from theory to practice, and the Article provides practical strategies for fostering local action on climate change by using these networks more effectively.

III. THE ROLES OF MULTILEVEL CLIMATE CHANGE NETWORKS

Localities and the networks in which they participate are the core focus of this Article. In order to understand their multiscalar interactions, it is critical to first identify key networks and their priorities. This Part explores some of the climate change networks relevant to the six metro regions that have developed international, national, state, and local scales. Its detailing of networks is not intended to be comprehensive, but rather aims to give a sense of the types of networks that exist at each scale and some of their major activities. In so doing, the Part illuminates the ways the various networks, though constituted at one level, interact with many actors at multiple levels, along the lines of Cox's network theory of scale.

Although the networks described in this section operate at different levels and have diverse core activities, they share in common a focus on assisting localities in efforts to do more to address climate change. Much of that "more" takes place at a local scale. The networks provide toolkits, examples, and recognition for local leaders who want to take additional steps, as well as a supportive network of similarly committed leaders. Participating leaders in some of these programs have indicated that these mechanisms provide a helpful framework for their activities.[36]

As becomes clear in this Part's descriptions, however, many of these voluntary local networks—even smaller-scale ones—also interact significantly with the international climate negotiations between nation-states. Some networks formed in reaction to failures by nation-states generally, and the United States in particular, to commit to action at international negotiations. In fact, many of the international-scale agreements among cities are made in parallel with annual Conference of the Party (COP) negotiations among nation-state parties to the United Nations Framework Convention on Climate Change. This interactivity helps reinforce the polycentric nature of climate change governance in general and the multiscalar character of local action in particular that Cox helps outline.[37]

A. International-Level Climate Change Networks

International-level networks of localities focus on changing behavior at multiple scales. A big part of their efforts involves trying to influence nation-state behavior and the course of international negotiations among them. Intertwined with that large-scale goal are local-level commitments made in international contexts by participating localities using their governmental powers. This section explores activities at all of these scales. It begins by describing the goals and activities of some of the most significant international-level networks, then turns to the ways in which these networks have influenced international negotiations, and concludes with a discussion of the agreements among localities that these networks have fostered.

1. Leading Networks

This section focuses on three of the international-level networks most active on local climate change action: the International Council for Local Environmental Initiatives (ICLEI), World Mayors Council on Climate Change (WMCCC), and United Cities and Local Governments (UCLG). Because ICLEI has the most extensive programs of the group, the section provides an in-depth analysis of ICLEI's work and a briefer summary of the other two networks.

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[36] Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 447.

[37] Cox, *Spaces of Dependence*, *supra* note 9, at 4–21.

(a) International Council for Local Environmental Initiatives

ICLEI is the most active of the international networks working on climate change.[38] ICLEI aims "to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability with [specific] focus on environmental conditions through cumulative local actions."[39] It works to: (1) connect leaders of "cities to other organizations on a local, national and international level"; (2) accelerate local government action by supporting campaigns and programs and forging partnerships with academics, businesses, and government leaders; and (3) serve as a gateway to solutions through "technical consulting, information services and training to build capacity, shar[ing] knowledge and support[ing] local governments in the implementation of sustainable development at the local level."[40] Although ICLEI's overall focus is more broadly on sustainability,[41] its climate change efforts include a wide range of programs that influence international treaty negotiations, create agreements among localities, and guide activities within localities. ICLEI claims that its Cities for Climate Protection (CCP) Campaign has eliminated more than 60 million tons of carbon-dioxide-equivalent emissions annually.[42]

ICLEI emerged from the first World Congress of Local Governments for a Sustainable Future in 1990 in New York, where it was founded by 200 local governments from forty-three countries.[43] It has grown in the over two decades since to include over 1,000 local governments of different sizes in eighty-four countries.[44] From the start, its programs have often paralleled international-level efforts by nation-states. For example, two of ICLEI's earliest initiatives were Local Agenda 21, "a program promoting participatory governance and local sustainable

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[38] ICLEI claims to be "the world's leading association of cities and local governments dedicated to sustainable development." Int'l Council for Local Envtl. Initiatives, *Who We Are*, ICLEI, http://www.iclei.org/iclei-global/who-is-iclei.html, *archived at* http://perma.cc/MZJ3-UU8S (last visited Oct. 20, 2014).

[39] *Id.*

[40] Int'l Council for Local Envtl. Initiatives, *Frequently Asked Questions*, ICLEI, http://www.iclei.org/iclei-global/who-is-iclei/faq.html, *archived at* http://perma.cc/NLJ2-7CG2 (last visited Sept. 11, 2014).

[41] ICLEI advances eight agendas: sustainable cities, resource-efficient cities, biodiverse cities, low-carbon cities, resilient cities, green urban economies, smart urban infrastructures, and healthy and happy communities. *See* Int'l Council for Local Envtl. Initiatives, *Our Activities,* ICLEI, http://www.iclei.org/our-activities/our-agendas/sustainable-city.html, *archived at* http://perma.cc/MUE7-LH47 (last visited Sept. 10, 2014).

[42] Int'l Council for Local Envtl. Initiatives, *Who We Are*, *supra* note 38.

[43] *Id.*

[44] ICLEI describes itself as "a powerful movement of 12 mega-cities, 100 super-cities and urban regions, 450 large cities as well as 450 medium-sized cities and towns in 86 countries." *Id.*

development planning," and CCP,[45] "the world's first and largest program supporting cities in climate action planning using a five milestone process including greenhouse gas emissions inventories to systematically reduce emissions."[46] Its sustainability focus and toolkit approach have since been used in different variations by many other organizations, including much smaller-scale initiatives such as Minnesota's Greenstep Cities program.

ICLEI has numerous programs for cities that work to achieve its emissions-reduction goals. It launched the carbon*n* Cities Climate Registry at the 2010 World Mayors Summit on climate change, which allows cities to voluntarily report their mitigation and adaptation targets, actions, and achievements.[47] This registry aims to make local governments more transparent and accountable and to help inform national governments and the broader global community of the local role in climate change action.[48] ICLEI claims that this registry, which collects data from 422 local and subnational governments in forty-four countries responsible for 2.25 gigatons of carbon dioxide equivalent emissions annually, is the world's largest global database for local climate action.[49] The registry pairs with other international initiatives and compacts to increase participation and its impacts.[50]

ICLEI's registry is complemented by toolkit oriented programs, as well as software and services, which assist local governments with making step-by-step progress on climate change. For example, ICLEI's GreenClimateCities program provides a three-phase model for local governments to take action that includes

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[45] *Id.*

[46] *Id.*

[47] Int'l Council for Local Envtl. Initiatives, *Low-carbon City*, ICLEI, http://www.iclei.org/our-activities/our-agendas/low-carbon-city.html#c2282, *archived at* http://perma.cc/7RKR-TT9X (last visited Sept. 10, 2014).

[48] CARBON*N* CLIMATE REGISTRY, *Mission*, http://citiesclimateregistry.org/about/mission/, *archived at* http://perma.cc/B3UR-FXYP (last visited Sept. 10, 2014).

[49] LUCAS DE MONCUIT, 2013 ANNUAL REPORT: LOCAL RESPONSE TO MEASURABLE, REPORTABLE, VERIFIABLE GLOBAL CLIMATE ACTION 1, 5, 13 (2014), *available at* http://citiesclimateregistry.org/fileadmin/user_upload/cCCR/cCCR_2014/cCCR-2013-annual-report.pdf, *archived at* http://perma.cc/E5JV-VUVD.

[50] For example, "Article 4 of the Mexico City Pact envisages that signatories report their climate commitments, performance and actions regularly through the carbon*n* Cities Climate Registry (cCCR)." The Mex. City Pact, *The Mexico City Pact*, http://www.mexicocitypact.org/en/the-mexico-city-pact-2/, *archived at* http://perma.cc/N3XN-MS52 (last visited Sept. 11, 2014). Likewise, the World Wildlife Fund's Earth Hour City Challenge (EHCC) will partner with cCCR in 2014. The EHCC 2014 participating cities will report to cCCR, and their reports will be evaluated by an international jury. CARBON*N* CLIMATE REGISTRY, *Earth Hour City Challenge*, CARBON*N*, http://citiesclimateregistry.org/partnerships/wwf-earth-hour-city-challenge/, *archived at* http://perma.cc/SD85-3DBH (last visited Sept. 11, 2014). The cCCR is also one component of ICLEI's Green Climate Cities Program. Int'l Council for Local Envtl. Initiatives, *What Is Green Climate Cities?*, ICLEI, http://www.iclei.org/our-activities/our-agendas/low-carbon-city/gcc.html, *archived at* http://perma.cc/NQ9N-E6QH (last visited Sept. 11, 2014).

numerous tools and opportunities for guidance and networking.[51] Its Urban Low Emission Development Strategies—implemented in conjunction with UN-Habitat and founded by the European Commission—helps selected local governments in Brazil, India, Indonesia, and South Africa with implementing its GreenClimateCities approach.[52] Covenant capaCITY provides a training program for European local governments to assist them with developing a Sustainable Energy Action Plan.[53] ICLEI also has developed software and online tools to support its efforts: (1) the "Climate and Air Pollution Planning Assistant" assists local governments with developing emissions reduction strategies as they participate in ICLEI's programs;[54] (2) the Harmonized Emissions Analysis Tool Plus "helps cities to account and report greenhouse gas (GHG) emissions[and] develop an emissions forecast and climate action plan";[55] and (3) the Online Toolbox of Methodologies on Climate And Energy, which provides examples of methodologies and tools.[56] It also created a Global Protocol for Community-Scale GHG Emissions, which attempts to address the wide variation in how GHG inventories are conducted by providing a standardized approach for cities to quantify their emissions.[57] Local leaders interviewed as part of this project described the modeling tools as particularly helpful for completing their greenhouse gas emissions inventories.[58]

(b) World Mayors Council on Climate Change

The World Mayors Council on Climate Change was founded in 2005 by the mayor of Kyoto just after the international-scale Kyoto Protocol came into force in

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[51] Int'l Council for Local Envtl. Initiatives, *What Is Green Climate Cities?*, *supra* note 50.

[52] Int'l Council for Local Envtl. Initiatives, *Low-carbon City*, *supra* note 47.

[53] Covenant CapaCITY, *Introducing Covenant capaCITY*, http://www.covenant-capacity.eu/eu/about-capacity/, *archived at* http://perma.cc/EES2-G2V3 (last visited Oct. 19, 2014).

[54] Int'l Council for Local Envtl. Initiatives USA, *Climate and Air Pollution Planning Assistant (CAPPA) Trainings*, ICLEI USA, http://www.icleiusa.org/action-center/skills-training/climate-and-air-pollution-planning-assistant-cappa-trainings, *archived at* http://perma.cc/4NQM-UQ94 (last visited Aug. 9, 2014).

[55] Int'l Council for Local Envtl. Initiatives, *Low-carbon City*, *supra* note 47. (follow "More" hyperlink under "Our Tools and Services").

[56] *Id.*; Toolbox of Methodologies Climate and Energy, *About the Toolbox*, http://toolbox.climate-protection.eu/about-the-toolbox/, *archived at* http://perma.cc/5LRY-4L8D (last visited Oct. 20, 2014).

[57] YUNUS ARIKAN ET AL., GLOBAL PROTOCOL FOR COMMUNITY-SCALE GREENHOUSE GAS EMISSIONS (GPC): PILOT VERSION 1.0 – MAY 2012 (2012), *available at* http://carbonn.org/fileadmin/user_upload/carbonn/Standards/GPC_PilotVersion_1.0_May2012_20120514.pdf, *archived at* http://perma.cc/D34F-Q8X9.

[58] Confidential Meeting with Local Leaders, (Feb. 7, 2014) [hereinafter Osofsky, Confidential Meeting with Local Leaders] (notes on file with author).

parallel with the Montreal Conference of the Parties.[59] WMCCC's goals include (1) "strengthening political leadership on global sustainability by building a group of committed local sustainability leaders"; and (2) "being the prime political advocacy force of cities and local governments on global sustainability matters."[60] WMCCC implements this mission by (1) "showcasing local leaders' climate and sustainability actions that contribute to policy change at local and global levels"; (2) "supporting its members to enhance their climate and sustainability leadership capacities"; (3) "addressing global climate and sustainability policy makers as a global body of leaders from diverse local governments"; and (4) "politically steering the development and implementation of mechanisms that support local climate and sustainability action."[61] Although the Council was constituted separately from ICLEI and functions independently, ICLEI provides technical and strategic support for it and often collaborates with it.[62]

(c) United Cities and Local Governments

United Cities and Local Governments has a broader focus than ICLEI or the World Mayors Council on Climate Change, with its stated mission of serving as "the united voice and world advocate of democratic local self-government, promoting its values, objectives and interests, through cooperation between local governments, and within the wider international community."[63] It is relevant to this Article's analysis, however, because of its active participation in the international climate change negotiations and its partnership with both of the other networks highlighted in this section. It formed the UCLG Climate Negotiation Group at its 2009 World Council, and that group has been actively participating in the climate change negotiations and in developing the transnational agreements among localities since then.[64] For example, the UCLG spokesperson played a leadership role in the creation

[59] World Mayors Council on Climate Change, *History*, WMCCC, http://www.worldmayorscouncil.org/about/history.html, *archived at* http://perma.cc/K86P-WSSF (last visited Oct. 20, 2014).

[60] World Mayors Council on Climate Change, *Mission and Method*, WMCCC, http://www.worldmayorscouncil.org/about/mission-and-method.html, *archived at* http://perma.cc/ZUB6-S4JB (last visited Oct. 20, 2014).

[61] *Id.*

[62] *Id.*

[63] United Cities and Local Governments, *About Us*, UCLG, http://www.uclg.org/en/organisation/about, *archived at* http://perma.cc/DBZ8-YLPZ (last visited Oct. 20, 2014).

[64] United Cities and Local Governments, *Climate Change*, UCLG, http://www.uclg.org/en/issues/climate-change, *archived at* http://perma.cc/3H3Y-V5SG (last visited Oct. 20, 2014).

of the 2013 Nantes Declaration of Mayors and Subnational Leaders on Climate Change discussed below.[65]

2. Influence on and Agreements Parallel to International Treaty Negotiations

The international negotiations have provided a primary site for networks of localities to gather and attempt to push nation-states both to do more and to recognize the local role in the treaties being negotiated.[66] These efforts have been organized since the 2007 Conference of the Parties in Bali under the auspices of a Local Government Climate Roadmap by ICLEI and UCLG. This effort was originally supposed to finish by the Copenhagen COP, but has continued through the more recent Conferences of the Parties.[67] At each COP negotiation, this coalition has made progress in getting more language on cities, localities, and subnational government into the international agreements and initiatives taking place under them. With the adoption of the Nantes Declaration of Mayors and Subnational Leaders on Climate Change in fall 2013, the climate roadmap entered a new phase.[68] The gathered localities created the Friends of the Cities group to bring together "national governments who wish to collaborate with local and subnational governments."[69]

While ICLEI and UCLG use their status as observers to influence the text at COP negotiations, their efforts are augmented by the side meetings among localities (and other subnational governments) often taking place parallel to the COPs. The participating governments create agreements in which they voluntarily commit to taking steps within their local control. These agreements have become more detailed over time, and have evolved from initially focusing primarily on mitigation to increasingly including adaptation. However, as detailed in depth in the following

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[65] United Cities and Local Governments, *Mayors and Subnational Leaders Meet in Nantes and Renew Commitment to Upscale Climate Change Actions*, UCLG (Oct. 10, 2013, 1:34 PM), http://www.uclg.org/en/node/20653, *archived at* http://perma.cc/HRR6-K2LB.

[66] Press Release, Int'l Council for Local Envtl. Initiatives, Durban Outcomes: Nations Invest in Time, World Must Invest in Cities, (Dec. 12, 2011), *available at* http://www.iclei-europe.org/fileadmin/templates/iclei-europe/files/content/ICLEI_IS/Press_releases/2011/12.12.11_COP17_Outcomes.pdf, *archived at* http://perma.cc/GQ8N-FVAR.

[67] *See* LOCAL GOV'T CLIMATE ROADMAP, FROM COPENHAGEN TO CANCÚN TO SOUTH AFRICA: COP15 - COP16 - COP17 (2010), [hereinafter LOCAL GOV'T CLIMATE ROADMAP], *available at* http://www.iclei.org/fileadmin/template/project_templates/climate-roadmap/files/Communication_Material/Towards_COP16/Concept_towards_COP16_Final_8September2010.pdf, *archived at* http://perma.cc/GMA3-VMUY.

[68] Gino Van Begin, *Comment: Look to Cities for Genuine Low Carbon Progress*, RESPONDING TO CLIMATE CHANGE (Oct. 11, 2013, 7:22 AM), http://www.rtcc.org/2013/10/10/comment-look-to-cities-for-real-progress-in-low-carbon-investment/, *archived at* http://perma.cc/P86N-LK9F.

[69] *Id.*

Part, the participation rate of cities in key U.S. metropolitan regions has been low other than in the Copenhagen City Climate Catalogue.

A sampling of agreements made from 2009 to the present exemplifies these trends. The 2,903 localities registered with the Copenhagen City Climate Catalogue—created in conjunction with the 2009 negotiations—made climate change commitments, often a percentage reduction in CO_2 equivalents by a certain date.[70] The 2010 Mexico City Pact, which ICLEI facilitates, built on the types of commitments localities made at Copenhagen, adding more substance to them. The 250 signatories to the pact—substantially fewer than those making commitments in the Catalogue—"voluntarily commit to 10 action points to advance local climate action, including the reduction of emissions, adaptation to the impacts of climate change and fostering city-to-city cooperation,"[71] with an emphasis on "globally measurable, reportable, and verifiable (MRV) local climate action."[72] Signatories are encouraged to report their climate actions on the cCCR network, discussed above, and the Pact's website also includes narrative reports of city efforts.[73]

The agreement among localities parallel to the 2011 Durban negotiations moved the focus to adaptation.[74] As of November 1, 2013, the 1200 signatories to the Durban Adaptation Charter had committed to a variety of initiatives around

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[70] Int'l Council for Local Envtl. Initiatives, *City Climate Catalogue: Over 1700 Communities Making a Point*, ICLEI (Oct. 30, 2009), http://climate-catalogue.org/index.php?id=6905, *archived at* http://perma.cc/UA5V-FQ2K; The City Climate Catalogue, *How Does the Catalogue Work?*, http://climate-catalogue.org/index.php?id=7507, *archived at* http://perma.cc/A4M8-84TH (last visited Sept. 10, 2014). As of the website's most recent update, 2,903 communities have listed 3251 targets. The City Climate Catalogue, *List of Commitments*, http://climate-catalogue.org/index.php?id=6870, *archived at* http://perma.cc/ES88-N6EM (last visited Sept. 10, 2014).

[71] Int'l Council for Local Envtl. Initiatives, *Low-carbon City*, *supra* note 47; *see also* INT'L SECRETARIAT, GLOBAL CITIES COVENANT ON CLIMATE: THE MEXICO CITY PACT, SECOND ANNUAL REPORT 2012 (Sandra Strikovsky Vestel ed., 2012) [hereinafter INT'L SECRETARIAT, GLOBAL CITIES COVENANT ON CLIMATE], *available at* http://www.mexicocitypact.org/wp-content/uploads/2013/09/Second-Anual-Report-2012-English.pdf, *archived at* http://perma.cc/RU7A-XADW.

[72] *Global Cities Covenant on Climate Change – The Mexico City Pact*, WORLD MAYORS COUNCIL ON CLIMATE CHANGE [hereinafter WMCCC, *Global Cities*], http://www.worldmayorscouncil.org/the-mexico-city-pact.html, *archived at* http://perma.cc/B6A4-5CYQ (last visited Sept. 10, 2014); *see also* Global Cities Covenant on Climate, *Strategic Importance of the Pact*, http://www.mexicocitypact.org/docs/importancia-estrategicaEN.php (last visited Feb. 13, 2014) (describing the Pact's strategic importance).

[73] WMCCC, *Global Cities*, *supra* note 72.

[74] *See* eThekwini Municipality, *Implementation of the Durban Adaptation Charter*, http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Projects/Pages/11.Implementation-of-the-Durban-Adaptation-Charter.aspx, *archived at* http://perma.cc/69AK-K8R4 (last visited Sept. 11, 2014).

adaptation—including integrating it into their local planning, preparing adaptation strategies, aligning adaptation and mitigation goals, and promoting multilevel, integrated governance and partnerships.[75] In addition, the Charter "offers cities a channel of opportunity to leverage funding sources and partnerships, an ever growing need in cities in emerging economies."[76] Ninety-four percent of those who had signed by July 31, 2012 were located in developing nations—with the majority coming from the southern hemisphere[77]—a point of concern—though recent signatories include, among others, Bonn, Germany; Fort Lauderdale, Florida; North Vancouver, Canada; Linkping, Sweden; and Seferihisar, Turkey.[78]

Although not in conjunction with a COP, the 2013 Nantes Declaration of Mayors and Subnational Leaders on Climate Change[79] is interesting because of its

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[75] DURBAN LOCAL GOV'T CONVENTION, DURBAN ADAPTATION CHARTER FOR LOCAL GOVERNMENTS AS ADOPTED ON THE 4TH DECEMBER 2011 OF THE OCCASION OF THE "DURBAN LOCAL GOVERNMENT CONVENTION: ADAPTING TO A CHANGING CLIMATE" – TOWARDS COP17/CMP7 AND BEYOND 2-3 (2011) [hereinafter DURBAN LOCAL GOV'T CONVENTION, DURBAN ADAPTATION CHARTER], *available at* https://unfccc.int/files/meetings/durban_nov_2011/statements/application/pdf/111209_cop17_hls_iclei_charter.pdf, *archived at* http://perma.cc/6X5P-W2ZQ; Press Release, Durban Adaptation Charter, Momentous DAC Signing Ceremony by 120 African Leaders (Nov. 1, 2013), *available at* http://durbanadaptationcharter.org/news, *archived at* http://perma.cc/TJ2G-KR9P.

[76] Int'l Council for Local Envtl. Initiatives, *Global Climate Change Adaptation Charter Gains Momentum with 11 New Signatories*, ICLEI (June 6, 2013) [hereinafter Int'l Council for Local Envtl. Initiatives, *Global Climate Change*], http://www.iclei.org/details/article/global-climate-change-adaptation-charter-gains-momentum-with-11-new-signatories.html, *archived at* http://perma.cc/YB6R-UQSB; *see* DURBAN LOCAL GOV'T CONVENTION, DURBAN ADAPTATION CHARTER, *supra* note 75.

[77] ETHEKWINI MUNICIPALITY, DURBAN ADAPTATION CHARTER 3 (2012), *available at* http://www.durban.gov.za/City_Services/development_planning_management/environmental_planning_climate_protection/Projects/Documents/DAC__Pamphlet.pdf, *archived at* http://perma.cc/N84R-FHE6.

[78] *See* Int'l Council for Local Envtl. Initiatives, *Global Climate Change*, *supra* note 76. According to the Adaptation Charter's website, two localities from the United States are signatories. Durban Adaptation Charter, *Signatories of the Durban Adaptation Charter*, http://www.durbanadaptationcharter.org/signatories, *archived at* http://perma.cc/VC8P-88PY (last visited Feb. 14, 2015).

[79] *See* INT'L COUNCIL FOR LOCAL ENVTL. INITIATIVES, NANTES DECLARATION OF MAYORS AND SUBNATIONAL LEADERS ON CLIMATE CHANGE LOCAL GOVERNMENT CLIMATE ROADMAP 2013-2015 1 [hereinafter INT'L COUNCIL FOR LOCAL ENVTL. INITIATIVES, NANTES DECLARATION], *available at* http://archive.iclei.org/fileadmin/user_upload/documents/Global/initiatives/2013_Nantes_Summit/WorldMayorsSummit2013_Nantes_EN_Declaration_only.pdf?utm_content=katrina.borromeo@iclei.org&utm_source=VerticalResponse&utm_medium=Email&utm_term=The%20Nantes%20Declaration%20of%20Mayors%20and%20Subnational%20Leaders%20on%20Climate%20Change&utm_campaign=Nantes%20Declaration%20refuels%20hopes%20for%20local%20governments%2

focus on the multiscalar dimensions of local action. Adopted "with the support of over 50 mayors from 30 countries, and more than 20 regional and global networks of local and subnational governments,"[80] the Nantes Declaration aims to increase connections between the local and global levels. It emphasizes scaling up local climate action and engaging with government and members of the private and financial sector at multiple levels.[81]

B. National-Level Climate Change Networks

The United States contains numerous national-level groups that bring local officials together. As Judith Resnik, Joshua Civin and Joseph Frueh have explored in depth in their work on translocal organizations of governmental actors (TOGAs), these groups include the following, among others (in order of founding year): the International City/County Management Association, U.S. Conference of Mayors, the National Association of Counties, the National League of Cities, and the National Association of Towns and Townships.[82] These organizations have been involved with issues of climate change in a variety of ways. For example, during the 2008 election, the U.S. Conference of Mayors called upon the federal government to "empower local elected officials, especially in metropolitan areas, to make the decisions on how federal transportation resources are invested, a shift this [sic] is especially crucial to change energy demand and greenhouse gas emissions in this sector."[83]

While all of these interactions among localities have the potential to influence their climate change mitigation and adaptation choices, two networks stand out at a national level as particularly important for purposes of this study: the U.S. Conference of Mayors Climate Protection Agreement (Mayors Agreement) and the Urban Sustainability Directors Network (USDN). As described in depth below, these two networks differ substantially from one another in their focuses, activities,

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C%20as%20science%20calls%20for%20urgent%20climate%20actionscontent, *archived at* http://perma.cc/5Q8S-N5SK.

[80] Int'l Council for Local Envtl. Initiatives, *Nantes. World Mayors Summit on Climate Change 2013*, LOCAL GOV'T CLIMATE ROADMAP, http://www.iclei.org/worldmayorssummit.html, *archived at* http://perma.cc/S9ZV-VCML (last visited Oct. 20, 2014).

[81] *See* INT'L COUNCIL FOR LOCAL ENVTL. INITIATIVES, NANTES DECLARATION, *supra* note 79 at 2–3; Van Begin, *supra* note 68.

[82] *See* Resnik et al., *supra* note 14, at 709, 726–33, 764.

[83] U.S. CONFERENCE OF MAYORS, NATIONAL ACTION AGENDA ON ENVIRONMENT AND ENERGY FOR THE NEXT PRESIDENT OF THE UNITED STATES 10 (2008), *available at* http://www.usmayors.org/maf/documents/20090105-Environment.pdf, *archived at* http://perma.cc/E47H-HKA7. Such pushes have also taken place in the clean energy context. *See, e.g.*, CLEAN ENERGY STATES ALLIANCE, ECONOMIC STIMULUS AND A FEDERAL/STATE CLEAN ENERGY PARTNERSHIP: CESA POSITION PAPER 1–3 (2009), *available at* http://www.cesa.org/assets/Uploads/Resources-pre-8-16/CESA-SLICE-position-paper-Fed State-partnershipjan2009.pdf, *archived at* http://perma.cc/49JV-YLZW.

and membership; comparing them highlights the varying ways national networks work to influence climate change action. The Mayors Agreement focuses specifically on climate change and is highly inclusive; any city can join that takes its pledge. USDN, in contrast, focuses more broadly on sustainability, with climate change as an important component, and includes a limited number of key people from North American leader cities—in the six metro regions studied, center cities were overrepresented compared to suburbs—to provide a safe space for collaboration.

1. U.S. Conference of Mayors Climate Protection Agreement

By far the most significant U.S. domestic climate-focused network that has emerged from the many TOGAs is the Mayors Agreement in which mayors pledge to meet what the U.S. commitments under the Kyoto Protocol would have been—reducing emissions to seven percent below 1990 levels by 2012—and to encourage larger-scale governments to do the same.[84] Specifically, signatories commit to taking the following three actions:

- Strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
- Urge their state governments, and the federal government, to enact policies and programs to meet or beat the greenhouse gas emission reduction target suggested for the United States in the Kyoto Protocol—7% reduction from 1990 levels by 2012; and
- Urge the U.S. Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.[85]

Seattle Mayor Greg Nickels launched this network in 2005 in response to the U.S. decision not to participate in the Kyoto Protocol. He worked with other mayors to organize an initial group of 141 mayors to pledge to those Kyoto Protocol targets.

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[84] Mayors Climate Prot. Ctr., *About the Mayors Climate Protection Center*, U.S. CONFERENCE OF MAYORS, http://www.usmayors.org/climateprotection/about.htm, *archived at* http://perma.cc/5ZZC-98KL (last visited Oct. 21, 2014); Mayors Climate Prot. Ctr., *List of Participating Mayors*, *supra* note 5.

[85] Mayors Climate Prot. Ctr., *U.S. Conference of Mayors Climate Protection Agreement*, U.S. CONFERENCE OF MAYORS, http://usmayors.org/climateprotection/agreement.htm, *archived at* http://perma.cc/C3V5-KUWX (last visited Oct. 21, 2014).

The U.S. Conference of Mayors unanimously endorsed the Mayors Agreement and has encouraged cities to sign on since then.[86]

In 2007, Douglas H. Palmer, then-Mayor of Trenton and President of the U.S. Conference of Mayors, in collaboration with Conference Executive Director Tom Cochran, launched the U.S. Conference of Mayors Climate Protection Center. The Center provides mayors with guidance and assistance with the goal of "increas[ing] the number of cities involved in the effort, and to equip[ping] all cities with the knowledge and tools that ultimately will have the greatest impact on undo [sic] the causes of global warming."[87] The Center provides best practices models[88] and gives awards to leader cities in large and small categories.[89]

2. Urban Sustainability Directors Network

USDN emerged from networking among a small group of municipal sustainability directors in 2008. These directors began communicating to share ideas and experiences, and decided that they wanted to create a more formal network that created a safe space for doing so. The Global Philanthropy Partnership agreed to sponsor this effort, and each director reached out to five others around the country. The initial group of 35 directors expanded to 70 by their first meeting in 2009, and then to 120 by 2013.[90] It has three primary functions: (1) providing its members with peer-to-peer networking opportunities, (2) funding a collaborative innovation system to create solutions that can scale, and (3) using regional networks to expand access and address specific issues.[91] Through those functions, USDN involves city officials beyond its core director members and encourages its member cities to lead regional initiatives in their area.[92]

Regarding its first function, an important role that USDN has played among its members is increasing their connectivity. In its annual mapping of member connections, USDN shows a growth from an average of eight connections per member in 2009 to an average that is consistently over thirty since 2012.[93] The

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[86] Mayors Climate Prot. Ctr., *About the Mayors Climate Protection Center*, *supra* note 84.

[87] *Id.*

[88] Mayors Climate Prot. Ctr., *Best Practices*, U.S. CONFERENCE OF MAYORS, http://www.usmayors.org/climateprotection/bestpractices.htm, *archived at* http://perma.cc/795L-5ZV64YCS-4HFF (last visited Oct. 15, 2014).

[89] Mayors Climate Prot. Ctr., *Awards*, U.S. CONFERENCE OF MAYORS, http://www.usmayors.org/climateprotection/climateawards.htm, *archived at* http://perma.cc/6EU9-8FZQ (last visited Oct. 15, 2014).

[90] Urban Sustainability Dirs. Network, *About Us*, USDN, http://usdn.org/public/About-us.html, *archived at* http://perma.cc/5F3W-3UPJ (last visited Oct. 20, 2014).

[91] *Id.*

[92] *Id.*

[93] Nils Moe & Mia Arter, Urban Sustainability Dirs. Network, PowerPoint: About USDN: A Project of GPP (Feb. 2014) (on file with the Utah Law Review).

members form user groups focused on mutual interests to learn from one another and avoid reinventing the wheel in their urban area. These interest groups focused on many issues relevant to climate change mitigation and adaptation, including the following:

- Expanding support and funding streams for bike sharing
- Integrating climate-preparedness planning into city departments
- Exploring the benefits of neighborhood scale approaches
- Building urban food systems
- Improving communication about sustainability
- Implementing best practices for tracking and reporting of metrics and outcomes[94]

This first networking function is complemented by USDN's collaborative innovation system. The system works in the following manner:

> USDN's programs mobilize members to pursue collaborative projects that address urgent challenges and timely opportunities facing multiple cities. The project's members work together to allow us to assess which innovation areas are the most strategically important and yield the most effective outcomes. USDN aggregates data from these projects to generate a valuable picture of the current urban sustainability innovation market.[95]

USDN has two funds that support this process, an innovation fund and a local sustainability matching fund.[96] Innovation fund projects have focused on many issues relevant to climate change, such as electric vehicles, commercial building energy disclosures, employee energy saving campaigns, adaptation lessons, switching streetlights, and an energy efficiency wedge tool.[97]

Finally, while USDN currently has 126 member directors serving cities that contain 53 million people, it works to reach additional cities through its eight regional networks: New England, Cascadia, Heartland, Western Adaptation Alliance, Southeast, Michigan, OKI (Ohio, Kentucky, Indiana), and Green Cities California. These eight networks collaborate with one another through the USDN Regional Network Coordinating Committee. USDN aims to use these regional

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[94] Urban Sustainability Dirs. Network, *About Us*, *supra* note 90.

[95] *Id.*

[96] *Id.*

[97] *See* Urban Sustainability Dirs. Network, *Innovation Products*, USDN, http://www.usdn.org/public/innovation.html, *archived at* http://perma.cc/7TDY-RMN7 (last visited Oct. 15, 2014).

networks to create access to a peer network for all North American local government sustainability leaders.[98]

The network appears to have had a significant impact on its member directors, who are also optimistic about its broader potential to address metro-regional climate change. One member director from the Southwest described it as the most significant of all of the climate networks.[99] This director explained that it has helped the participating directors in many tangible ways and that its regional networks could perpetuate this process throughout many more cities.[100]

C. Regional, State, and Local-Level Climate Change Networks

In addition to these international- and national-level efforts, many states, cities, and regions have developed relevant networks. This section details examples of networks in each of the metropolitan regions that are the focus of this Article: Atlanta, Chicago, Denver, New York, San Francisco, and the Twin Cities. Together, they highlight the ways smaller scale networks complement efforts at a national and international scale. Because many of these smaller-scale networks achieve greater participation than the larger-scale networks in particular metro regions, as Part IV details in more depth, these become an important gateway for encouraging local mitigation and adaptation.

These networks vary in their focus and geographic scale. Some of these networks focus directly on climate change, while others have a broader focus, such as sustainability, but do substantial work related to climate change. The networks range from interstate regional to statewide to metro regional, and many of them have linkages to other levels of government or key public and private actors. In their strategic approaches, a number of them employ variations on the toolkit approach described above with respect to ICLEI.

1. EPA Regional Networks

Although the Environmental Protection Agency has a national scope overall, it also is divided into regions. This Article uses an example network from Region 5 that covers Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin and thirty-five tribes, and thus includes the Chicago and Twin Cities metro regions.[101] In addition to having a climate action plan, EPA Region 5 has created a network and aimed resources at local governments. The EPA Region 5 Community Climate Change Network "provides information and opportunities about energy efficiency and

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[98] *See* Urban Sustainability Dirs. Network, *About Us*, *supra* note 90.

[99] Osofsky, Confidential Meeting with Local Leaders, *supra* note 58.

[100] *Id.*

[101] *See* U.S. Envtl. Prot. Agency, *Region 5 Climate Change*, http://www.epa.gov/r5climatechange/, *archived at* http://perma.cc/7SKU-CA8U (last visited Oct. 16, 2014). The other EPA regions are also involved in various forms of climate change action, but this Article focuses on Region 5 as an exemplar.

greenhouse gas reduction to municipalities, as well as access to a network of other like-minded communities that are taking action on climate change."[102] Region 5 also has established energy-efficiency and climate-partnership programs that assist municipalities with buildings, waste, combined heat and power, clean energy purchasing, water and energy conservation, and obtaining energy from landfills.[103] Region 5's 2009 Community Climate Change Initiative has encouraged communities to join one of the above programs and the number of municipalities involved has grown to seventy-six.[104] Region 5 also assists communities with municipal energy, specifically with using the negotiation of their franchise agreements with utilities to increase energy efficiency and promote renewable energy.[105]

2. Atlanta

The Atlanta Regional Commission Certified Green Communities provides voluntary sustainability certifications for local governments in the ten-county Atlanta metropolitan region.[106] Local governments earn points by implementing sustainable practices in ten different areas, and can obtain gold, silver, or bronze certification.[107] Although the program focuses on sustainability, a number of areas relate directly to climate change issues, such as Green Building,[108] Energy

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[102] *See* U.S. Envtl. Prot. Agency, *Municipalities*, http://www.epa.gov/r5climatechange/municipalities.html, *archived at* http://perma.cc/NDA9-MM2F (last visited Oct. 16, 2014).

[103] *Id.*

[104] *See id.*

[105] *Id.*

[106] Atlanta Reg'l Comm'n, *Certified Green Communities Program*, http://www.atlantaregional.com/environment/green-communities, *archived at* http://perma.cc/LP2M-JU3Y (last visited Oct. 20, 2014). The stated benefits of certification are that it "[f]osters civic pride[,] [c]reates a positive image of a place to live or conduct business[,] [s]ets an example for businesses and organizations seeking to reduce their environmental impact[, and] [l]eads to a greater quality of life." *Id*.

[107] *Id.* The stated goals of the program are

> To promote measures that encourage local governments to work towards reducing the environmental footprint of the government through its policies, practices, buildings and fleets; To promote measures that assist local governments in encouraging their community to reduce its environmental impact; To provide assistance in public education and outreach on sustainability.

Id; *see* ATLANTA REG'L COM'N NATURAL RES. DIV., CERTIFICATION MANUAL (2012), *available at* http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/2013_MANUAL_Green_Communities_December2012.pdf, *archived at* http://perma.cc/E8R9-5FZP.

[108] Examples of policies and practices within the "Green Building" category include adopting a government policy that all new large buildings are LEED certified; requiring new

Efficiency,[109] Green Power,[110] and Transportation and Air Quality.[111] While cities vary in which measures they take, some are more widespread. For instance, almost every community has synchronized their traffic lights, but no community has agreed to retrofit their government vehicles.[112]

3. Chicago

Like the Atlanta Regional Commission Certified Green Communities, Chicago Wilderness has a broader focus than climate change.[113] The regional alliance, with membership that includes "local, state and federal agencies, large conservation organizations, cultural and education institutions, volunteer groups, municipalities,

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or renovated buildings to be ENERGY STAR, EarthCraft Light Commercial, or LEED certified; offering incentives for green building such as expedited planning development or reduced development fees; offering incentives for affordable housing entities to have certified energy efficient housing; and others. ATLANTA REG'L COM'N NATURAL RES. DIV., *supra* note 107, at 7–15.

[109] Examples of policies and practices within the "Energy Efficiency" category include conducting energy audits of government buildings, becoming an ENERGY STAR partner community, agreeing to purchase at least ENERGY STAR rated equipment, installing LED traffic lights, having a "lights out/power down" policy, having a demonstration cool roof, encouraging replacement of inefficient light bulbs, establishing an inspection program to enforce Georgia's residential- and commercial-energy codes, and incentivizing or requiring efficient outdoor lighting. *Id.* at 17–27.

[110] Examples of policies and practices within the "Green Power" category include operating a demonstration renewable energy project, becoming a US EPA Green Power Partner, and incentivizing community solar. *Id.* at 29–34.

[111] Examples of policies and practices within the "Transportation and Air Quality" category include incentivizing a carpool program or subsidizing public transit costs for their employees; adopting a green fleet policy that requires the purchase of only the most fuel efficient and least polluting government vehicles; adopting a government no-idling policy; retrofitting government vehicles; producing or purchasing alternative fuels for government vehicles; adopting a complete streets policy or ordinance for multipurpose use of streets by bicycles, pedestrians, motorists and bus riders; synchronizing traffic lights to reduce idling and congestion; implementing a "safe routes to school" program to encourage walking and bicycling to school; requiring end-of-trip bicycle facilities at all community facilities; adopting bike and pedestrian friendly policies; and encouraging shared, joint, and/or reduced parking. *Id.* at 59–74.

[112] *See* ATLANTA REG'L COMM'N NATURAL RES. DIV., SUMMARY OF GREEN COMMUNITIES ACHIEVEMENTS (2012), *available at* http://www.atlantaregional.com/File%20Library/Environment/Green%20Communities/GC_Summary Achievements _2012.pdf, *archived at* http://perma.cc/XZE8-X7NV.

[113] Chi. Wilderness, *What We Do*, http://www.chicagowilderness.org/what-we-do, *archived at* http://perma.cc/4UUX-AYYY (last visited Oct. 17, 2014).

corporations, and faith-based groups,"[114] works to connect people with nature.[115] However, one of Chicago Wilderness's four primary initiatives is to mitigate climate change.[116] It also builds networks around these issues beyond the Chicago area: "Chicago Wilderness helped create, and chairs, the Metropolitan Greenspaces Alliance," which is "a national network of urban conservation coalitions working to promote [a] collaborative approach, sharing knowledge and best practices across major metropolitan areas."[117]

With respect to climate change, Chicago Wilderness provides a variety of resources and has developed a plan and tools for biodiversity recovery and adaptation.[118] Its "Climate Action Plan for Nature" is "the first plan of its kind to link climate change specifically to issues of biodiversity conservation."[119] Chicago Wilderness identifies high priority actions[120] and specific mitigation,[121]

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[114] Chi. Wilderness, *Who We Are*, http://www.chicagowilderness.org/who-we-are/, *archived at* http://perma.cc/35GB-5HGZ (last visited Oct. 19, 2014).

[115] *Id.*

[116] *Id.*

[117] *Id.*; *see also* Chi. Wilderness, *Metropolitan Greenspaces Alliance*, http://www.chicagowilderness.org/who-we-are/metropolitan-greenspaces-alliance/, *archived at* http://perma.cc/2875-C78C (last visited Oct. 20, 2014).

[118] *E.g.*, CHICAGO WILDERNESS, BIODIVERSITY RECOVERY PLAN (1999), *available at* http://www.chicagowilderness.org/files/3413/3034/7640/biodiversity_recovery_plan.pdf, *archived at* http://perma.cc/U4Q-T2Z2; Chi. Wilderness, *Climate Action*, http://www.chicagowilderness.org/what-we-do/climate-action/, *archived at* http://perma.cc/893B-F63R (last visited Oct. 20, 2014); Chi. Wilderness, *Climate Change Impacts on Regional Biodiversity*, http://www. chicagowilderness.org/what-we-do/climate-action/climate-change-and-regional-biodiversity/, *archived at* http://perma.cc/45SY-QCJE (last visited Oct. 20, 2014).

[119] Chi. Wilderness, *Climate Action*, *supra* note 118.

[120] The plan identifies "three main strategies [as] high priority actions": "(1) mitigate the future impact of climate change; (2) adapt to those that are inevitable; and (3) engage the Chicago Wilderness community in action." CHICAGO WILDERNESS, CHICAGO WILDERNESS CLIMATE ACTION PLAN FOR NATURE 4, *available at* http://www.chicagowilderness.org/files/2213/3035/6961/Climate_Action_Plan_for_Nature.pdf, *archived at* http://perma.cc/P429-S3PZ (last visited Sept. 23, 2014).

[121] Mitigation strategies include recognizing the value of conservation and ecosystem restoration in combatting climate change, conducting a CO2 inventory and reducing the carbon footprint of all members, "help[ing] Chicago Wilderness conservationists take advantage of new finance opportunities related to the carbon market," and "advanc[ing] climate science to increase the efficacy of mitigation strategies in the Chicago Wilderness region." *Id.*

adaptation,[122] and engagement strategies.[123] One of its projects with the City of Chicago, the Nature Conservancy, University of Notre Dame, and the Field Museum is the Climate Considerations Guidebook,[124] which assists with natural area and green space management and focuses particularly on adaptation and species.[125] Six sites are piloting the Guidebook.[126] Chicago Wilderness also provides links to other resources, such as the "Climate Adaptation Guidebook for Municipalities in the Chicago Region" developed by the Chicago Metropolitan Agency for Planning (CMAP), and "[t]he Nature Conservancy Climate Change Adaptation Case Study."[127]

4. Denver

The Colorado Climate Network aims to support mitigation and adaptation efforts by local governments and allied organizations in the state.[128] It focuses primarily on legislation and on providing workshops and conferences.[129] The Network's legislative tracker service informs members about state policy actions that will have a significant impact on the success of local efforts.[130] Its annual

[122] Adaptation strategies include (1) "assess[ing] the vulnerability of priority Chicago Wilderness terrestrial and aquatic conservation targets to climate change," (2) "promot[ing] and maintain[ing] larger landscapes for biodiversity resiliency with connectivity of green space," (3) "integrat[ing] stormwater management policy with information on how climate change is expected to impact the region," and (4) "develop[ing] monitoring programs to evaluate adaptation strategies." *Id.* at 5.

[123] Engagement strategies include (1) "establish[ing] a Climate Clinic program to engage conservation practitioners in learning, thinking critically and applying knowledge of climate science to natural area conservation"; (2) "build[ing] on existing climate change education programs and tools for educators"; and (3) "us[ing] outcomes from mitigation actions to inform key decision makers of the role land conservation plays in climate change action." *Id.*

[124] Chi. Wilderness, *Climate Action*, *supra* note 118; *see* A. DERBY LEWIS, ET AL., ADVANCING ADAPTATION IN THE CITY OF CHICAGO: CLIMATE CONSIDERATIONS FOR MANAGEMENT OF NATURAL AREAS 1–3 (2012), *available at* https://adapt.nd.edu/resources/1107/download/Climate_Considerations_Chicago_FINAL.pdf, *archived at* http://perma.cc/DCB9-CKCW.

[125] LEWIS, ET AL., ADVANCING ADAPTATION IN THE CITY OF CHICAGO: CLIMATE CONSIDERATIONS FOR MANAGEMENT OF NATURAL AREAS, *supra* note 124 at 1–3.

[126] *Id.*

[127] Chi. Wilderness, *Climate Action*, *supra* note 118; *Climate Adaptation Toolkit*, CMAP, http://www.cmap.illinois.gov/climate-adaptation, *archived at* http://perma.cc/88W9-R3F6 (last visited Sept. 9, 2014).

[128] Colo. Climate Network, *What We Do*, http://www.coclimatenetwork.org/, *archived at* http://perma.cc/QAP4-LAYU (last visited Sept. 9, 2014).

[129] *Id.*

[130] Colo. Climate Network, *Colorado Climate Network Programs*, http://www.coclimatenetwork.org/programs/index.html, *archived at* http://perma.cc/Y82J-4CPC (last visited Sept. 11, 2014).

conferences and periodic workshops provide opportunities for information, skill-building, and networking.[131] These workshops at times assist with creating needed harmonization. For instance, a workshop held in April of 2013 discussed the range of methods Colorado local governments use to inventory GHGs and ways to make state and local inventories more consistent.[132] The Network's website also provides links to grant opportunities and to state, local, and national programs run throughout the country.[133]

5. New York City

New York's Climate Smart Communities is a "state-local partnership."[134] The statewide network, which is cosponsored by several relevant state agencies,[135] provides a variety of services to local governments, including community coordinators, a communities listserv, webinars, and a local-action guide.[136] The community coordinators assist with the selection, development, and implementation of local climate action programs; some of them work with specified geographic regions and others on a statewide basis.[137] The listserv alerts local governments to

[131] *Id.*

[132] *Id.*

[133] *Id.*

[134] N.Y. Dep't of Envtl. Conservation, *Community Sustainability*, http://www.dec.ny.gov/energy/76483.html, *archived at* http://perma.cc/R6MZ-FTRL (last visited Sept. 11, 2014).

[135] "The Climate Smart Communities program is jointly sponsored by the following six New York State agencies: Department of Environmental Conservation; Energy Research and Development Authority; Public Service Commission; Department of State; Department of Transportation; and the Department of Health." N.Y. Dep't of Envtl. Conservation, *Climate Smart Communities*, http://www.dec.ny.gov/energy/50845.html#Climate, *archived at* http://perma.cc/DZM6-SJVL (last visited Sept. 9, 2014).

[136] *Id.*

[137] Climate Action Assocs. LLC, *Company Overview*, http://climatetools.com/about.html, *archived at* http://perma.cc/K7PG-7C8P (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Capital District CSC Coordinator*, http://www.dec.ny.gov/energy/85100.html, *archived at* http://perma.cc/Y7QC-TZP6 (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Climate Smart Community Coordinators*, http://www.dec.ny.gov/energy/84508.html, *archived at* http://perma.cc/SHS4-553X (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Land Use and Transportation Planning Support CSC Coordinator*, http://www.dec.ny.gov/energy/85125.html, *archived at* http://perma.cc/MEL8-YADV (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Long Island CSC Coordinator*, http://www.dec.ny.gov/energy/85115.html, *archived at* http://perma.cc/N8KL-Q6ND (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Mid-Hudson CSC Coordinator*, http://www.dec.ny.gov/energy/85110.html, *archived at* http://perma.cc/JX74-DLUE (last visited Sept. 9, 2014); N.Y. Dep't of Envtl. Conservation, *Statewide (Outside of Pilot Regions) CSC Coordinator*, http://www.dec.ny.gov/energy/85120.html, *archived at* http://perma.cc/VE2V-LHHU (last visited Sept. 9, 2014).

funding, educational, and networking opportunities.[138] Webinars provide governments with information on a broad range of climate-relevant topics.[139] The *Climate Smart Communities Guide to Local Action* provides comprehensive information for localities interested in becoming a Climate Smart Community.[140] The guide includes technical and policy support for setting and measuring emissions goals, decreasing energy demands for government facilities and transportation, encouraging renewables for local government operations, implementing climate friendly waste management practices, and adapting to climate change.[141] The program also allows special access to some state assistance programs for communities that sign the Climate Smart Pledge.[142]

6. San Francisco

The Institute for Local Government, the research and education affiliate of the California State Association of Counties and the League of California Cities, focuses broadly on supporting good government at a local level.[143] Like other state and regional networks described in this section, it has extensive programs and resources on climate change for California local governments that make it appropriate for inclusion in this study.[144] Specifically, its sustainable communities program provides information to local officials on greenhouse gas inventories, climate action plans, and adapting to climate change.[145] It also gives out a "Beacon Award" to recognize California cities and counties "that are working to reduce greenhouse gas emissions, save energy and adopt policies and programs that promote sustainability."[146] The Statewide Energy Efficiency Collaborative—a "collaboration between three statewide non-profit organizations and California's four Investor Owned

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[138] N.Y. Dep't of Envtl. Conservation, *Community Sustainability*, http://www.dec.ny.gov/energy/50845.html, *archived at* http://perma.cc/3UJ5-RGKH (last visited Sept. 9, 2014).

[139] N.Y. Dep't of Envtl. Conservation, *Climate Smart Webinar Presentations*, http://www.dec.ny.gov/energy/84359.html, *archived at* http://perma.cc/TMC7-RET2 (last visited Sept. 9, 2014).

[140] N.Y. Dep't of Envtl. Conservation, *Climate Smart Communities*, *supra* note 135.

[141] *Id.*

[142] N.Y. Dep't of Envtl. Conservation, *Adopt the Climate Smart Communities Pledge*, http://www.dec.ny.gov/energy/53013.html, *archived at* http://perma.cc/884Y-A9HF (last visited Sept. 9, 2014).

[143] Inst. for Local Gov't, *About ILG*, http://www.ca-ilg.org/about-institute-local-government, *archived at* http://perma.cc/ZJG6-AYFJ (last visited Sept. 9, 2014); Inst. for Local Gov't, *Beacon Award: Local Leadership Toward Solving Climate Change*, http://www.ca-ilg.org/beacon-award-local-leadership-toward-solving-climate-change, *archived at* http://perma.cc/ZZM2-9LYS (last visited Sept. 9, 2014); Inst. For Local Gov't, *About ILG*, http://www.ca-ilg.org/about-institute-local-government, *archived at* http://perma.cc/ZJG6-AYFJ (last visited Sept. 9, 2014).

[144] Inst. for Local Gov't, *Beacon Award*, *supra* note 143.

[145] *Id.*

[146] *Id.*

Utilities"—cosponsors the Beacon Award, which is funded by California utility ratepayers and administered by several California utilities under the auspice of its public utilities commission.[147] Participants may receive a Silver, Gold, or Platinum Beacon Award based on their efforts to increase energy efficiency, reduce greenhouse gas emissions, or implement designated activities in ten different "Best Practice Areas."[148]

7. Twin Cities

For the Twin Cities, the Article includes two different statewide networks because of their different emphases and opportunities for participation. Greenstep Cities, like some of the other programs described in this section, is a statewide sustainability program targeting local governments that includes categories relevant to climate change.[149] Cities are recognized for implementing best practices in buildings and lighting, land use, transportation, environmental management, and economic and community development.[150] As discussed in more depth in *Suburban Climate Change Efforts*, Greenstep Cities emerged out of the implementation of state legislation.[151] It is administered by a state agency, but it includes a number of

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[147] Inst. for Local Gov't, *Beacon Award: Local Leadership Toward Solving Climate Change*, http://www.ca-ilg.org/overview/beacon-award-local-leadership-toward-solving-climate-change, *archived at* http://perma.cc/8HAW-PPK9 (last visited Nov. 14, 2014).

[148] INST. FOR LOCAL GOV'T, BEACON AWARD: LOCAL LEADERSHIP TOWARD SOLVING CLIMATE CHANGE 3, *available at* http://www.ca-ilg.org/sites/main/files/file-attachments/beacon_award_brochure.pdf, *archived at* http://perma.cc/DDY9-ST3A (last visited Sept. 23, 2014). To win a Beacon Award, participating agencies are required to complete each of the following six elements: "(1) Agency Greenhouse Gas Reductions; (2) Agency Electricity Savings; (3) Agency Natural Gas Savings; (4) Community Greenhouse Gas Reduction; (5) Activity Promoting Energy Efficiency in the Community; [and] (6) Activities in each of the Institute's ten Sustainability Best Practice Areas." Inst. for Local Gov't, *Beacon Award Winners*, http://www.ca-ilg.org/post/beacon-award-winners, *archived at* http://perma.cc/8FUK-8ZV6 (last visited Oct. 13, 2013). While a Silver Award winner may focus its activities on education and outreach, an example of a Platinum Award activity would be "[a]dopting a green building ordinance" or "[s]ponsoring home energy audit and efficiency retrofit programs." INST. FOR LOCAL GOV'T, GUIDELINES FOR PARTICIPATION & RECOGNITION 12 (2013), *available at* http://www.ca-ilg.org/sites/main/files/file-attachments/beacon_program_guidelines_june_2013_revise_final_0.pdf, *archived at* http://perma.cc/36UN-4AY2. For the winners, see Institute for Local Government, *Beacon Award Winners*, *supra*.

[149] Minn. Pollution Control Agency, *Minnesota GreenStep Cities*, http://greenstep.pca.state.mn.us/index.cfm, *archived at* http://perma.cc/G6CN-YVPW (last visited Oct. 15, 2014).

[150] MINN. POLLUTION CONTROL AGENCY, MINNESOTA GREENSTEP CITIES 1, *available at* http://www.pca.state.mn.us/index.php/view-document.html?gid=17370, *archived at* http://perma.cc/PQ4W-X5T7.

[151] Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 415–17.

partner organizations—including nonprofits, city advocacy organizations, and government agencies—in its bimonthly working committee and receives foundation funding in addition to government funding.[152]

The Minnesota Energy Challenge is a statewide program run by the nonprofit organization Center for Energy and the Environment.[153] It maintains an online action guide to help Minnesotans reduce energy waste and allows communities—including local governments, schools, businesses, nonprofits, neighborhood organizations, and other community groups—to form teams that compete for energy savings.[154] This network differs from some of the others studied because it focuses not just on local governments but on other community-based, often sublocal, entities. The teams track both their dollar and carbon savings on the Minnesota Energy Challenge website.[155] In addition to the action guide and teams, the website provides a link to a personal carbon footprint calculator and other information to help people reduce energy use.[156] The Minnesota Energy Challenge's statewide coordinator also organizes educational events and other outreach efforts at local schools, churches, neighborhood organizations, and other community groups.[157]

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[152] Minn. Pollution Control Agency, *The Minnesota GreenStep Cities Program*, http://greenstep.pca.state.mn.us/aboutProgram.cfm, *archived at* http://perma.cc/VN3T-NENC (last visited Oct. 15, 2014); *see* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 15–16.

[153] Emma Shriver, *Minnesota Energy Challenge*, MINN. CTR. FOR ENERGY & ENV'T (Oct. 2006), http://www.mncee.org, *archived at* http://perma.cc/4V82-LGZ2 (follow "Innovation Exchange: Resource Center" hyperlink; then "Data & Reference" hyperlink, then "Minnesota Energy Challenge" hyperlink); MN Energy Challenge, *About the Challenge*, http://www.mnenergychallenge.org/About-the-Challenge.aspx, *archived* http://perma.cc/FG2-5K4P (last visited Oct. 15, 2014).

[154] MN Energy Challenge, *Start a Team*, http://www.mnenergychallenge.org/Teams/Create.aspx, *archived at* http://perma.cc/8XBV-GGL8 (last visited Oct. 25, 2014).

[155] MN Energy Challenge, *Challenge FAQs*, http://www.mnenergychallenge.org/About-the-Challenge/Challenge-FAQs.aspx, *archived at* http://perma.cc/FG2-5K4P (last visited Oct. 15, 2014) ("Three people live in their 2,000 ft2 home, and spend $850 a year on electricity and $1,185 a year on natural gas. They have two cars, which get an average of 22 miles per gallon, and are driven about 12,500 miles a year. In total, they're spending over $4,300 every year on energy and have a carbon footprint of more than 51,900 pounds of carbon dioxide emissions annually.").

[156] MN Energy Challenge, *How Do You Measure Up?*, http://www.mnenergychallenge.org/Actions/How-Do-You-Measure-Up-.aspx, *archived at* http://perma.cc/BHK5-YVQ9 (last visited Oct. 15, 2014).

[157] MN Energy Challenge, *About Emma*, http://www.mnenergychallenge.org/About-the-Challenge/About-Neely.aspx, *archived at* http://perma.cc/4A45-S4QU (last visited Sept. 12, 2014).

IV. NETWORK PARTICIPATION PATTERNS BY CITIES IN U.S. MAJOR METROPOLITAN REGIONS

While all of the example networks described in Part III have goals and programs that could help with mitigation and adaptation, participation is critical. Localities must actually commit to take these steps and follow through for these networks to make a significant aggregate difference beyond influencing international negotiations. Moreover, numbers alone only give a partial picture. Given the organization of most major U.S. cities into metropolitan regions, patterns of participation within those regions are crucial to understanding where the biggest gaps and opportunities are.

This Part takes on that challenge. It considers how different types of cities are participating in international, national, state, and regional networks by examining six major U.S. metropolitan regions in different parts of the country. Understanding these participation patterns is an important first step for planning strategies to increase a network's effectiveness in getting more localities to do more. As described in depth in Part V, I will build on this analysis in future qualitative research by exploring why cities join these networks and how participating in networks changes the cities' behavior.

As Table 1 indicates, an initial overall look at participation in international and national networks in six metropolitan regions is rather concerning. While some of the metro regions show significant participation in the Mayors Agreement, ICLEI, and the Copenhagen City Climate Catalogue, and most have cities involved with USDN and the carbon*n* registry, very few cities in the metropolitan regions have participated in the more recent international agreements. Moreover, even the Copenhagen City Climate Catalogue commitments may not be a strong signifier of broader international participation because the cities making those commitments generally were members of the Mayors Agreement and simply repeated their Mayors Agreement commitment in the Catalogue.

Table 1: Overall Participation of Cities in Six Sample Metropolitan Regions in International and National Climate Change Related Networks[158]

	Atlanta (109)	**Chicago (181)**	**Denver (68)**	**New York City (327)**	**San Francisco (104)**	**Twin Cities (322)**
ICLEI	2 (1.8%)	8 (4.4%)	2 (2.9%)	31 (9.5%)	55 (52.9%)	8 (2.5%)
Nantes Declaration	0	0	1 (1.5%)	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0
Mexico City Pact	0	0	1 (1.5%)	0	0	1 (0.3%)
Copenhagen City Climate Catalogue	0	28 (15.5%)	3 (4.4%)	59 (18%)	51 (49%)	21 (6.5%)
carbon*n* Cities Climate Change Registry	1 (0.9%)	2 (1.1%)	0	1 (0.3%)	8 (7.7%)	1 (0.3%)
Mayors Agreement	2 (1.8%)	32 (17.7%)	4 (5.9%)	64 (19.6%)	60 (57.5%)	22 (6.8%)
Urban Sustainability Directors Network	2 (1.8%)	3 (1.7%)	2 (2.9%)	4 (1.2%)	4 (3.8%)	1 (0.3%)

The sections that follow take a more detailed look at each of the metropolitan regions—including these international- and national-level networks, but also state and regional ones—to see how participation patterns vary by city type within the region. In particular, drawing from the categorizations and maps created by Myron Orfield in *American Metropolitics: The New Suburban Reality*,[159] they examine participation by central cities,[160] at-risk segregated communities,[161] at-risk older

[158] *See* Hari M. Osofsky, Appendix: Patterns of Network Participation in Major Metropolitan Areas (2014) (on file with Utah Law Review), *archived at* http://perma.cc/L2PG-VSTU.

[159] ORFIELD, *supra* note 27.

[160] These are the core center cities upon which these metropolitan regions are based: Atlanta, Chicago, Denver, New York, San Francisco and Oakland, and Minneapolis-St. Paul. *Id.* at 23–28.

[161] These cities have "very low tax capacity, slow tax-capacity growth, high municipal costs, and high concentrations of minority children in public schools." *Id.* at 37. Many of them are inner-ring suburbs. They often have a higher non-Asian minority population than the center cities with a "fraction of the resources of the central cities they surround." *Id.* They "are some of metropolitan America's worst places to live." *Id.*

communities,[162] at-risk low-density communities,[163] bedroom developing communities,[164] affluent job centers, and very affluent job centers.[165] To the extent that some types of cities tend to participate in particular networks more than others, these patterns may point a way forward to involving a greater number of cities in more climate action. Also, as I found in my initial sample of cities in *Suburban Climate Change Efforts*, the types of actions taken vary by city type and so targeting models by city type and pairing other needs with climate change mitigation and adaptation—rather than just providing a general toolkit for local action—may help encourage greater participation.[166]

A. Atlanta

Founded in 1837, Atlanta is the capital of Georgia and the state's largest city.[167] According to the 2012 census data, Atlanta is the eleventh largest metropolitan region in the United States.[168] It serves as a major commercial, financial, and transportation center in the southeastern United States.[169] As with all of the metropolitan regions studied, however, the Atlanta region's center city represents

[162] These cities are "very high-density suburbs that had relatively low poverty rates, low tax capacity, slower-than-average growth in fiscal capacity, and slow population growth . . . . The group comprises mostly older, inner-ring suburbs and small, outlying cities that have been swallowed up by metropolitan growth." *Id.* at 38.

[163] These cities are "relatively low-density localities with low tax capacities that are growing more slowly than their regions and with higher-than-average poverty and population growth rates. These communities, home to about a fourth of the population in . . . [many] metropolitan areas, are typically located in the metropolitan areas' outer portions." *Id.* at 41.

[164] These cities are "what many would regard as the prototypical suburb. The population—mostly white—is growing more quickly in the suburbs in this group than in any other. Density is low, housing is new, and tax capacity is just below average and growing at an average rate." *Id.* at 42.

[165] These cities "have moved well beyond their traditional role as bedroom communities for large cities and are now major players in their regional economy." *Id.* at 44.

[166] *See* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 452–54.

[167] Andy Ambrose, *Atlanta*, NEW GA. ENCYCLOPEDIA, http://www.georgiaencyclopedia.org/articles/counties-cities-neighborhoods/atlanta, *archived at* http://perma.cc/5R3D-AN7R (last updated June 5, 2014).

[168] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, CENSUS.GOV, http://www.census.gov/popest/data/metro/totals/2012/, *archived at* http://perma.cc/9PN4-Y7F4 (last visited Sept. 12, 2014) (follow "Annual Estimates of the Population of Metropolitan and Micropolitan Statistical Areas: April 1, 2010 to July 1, 2012 (CBSA-EST2012-01) [XLS – 153k]" hyperlink; then in Excel, sort metropolitan regions, largest to smallest by the 2012 population estimates).

[169] Ambrose, *Atlanta*, *supra* note 167.

only a fraction of the metropolitan region's population—less than 10% in this case.[170]

Atlanta's growth pattern has followed the path Muller outlined for metropolitan regions.[171] The expansion of intersecting rail lines allowed it to emerge as a regional center before and after the Civil War.[172] In the early twentieth century, Atlanta's economy diversified, but its development patterns remained deeply impacted by segregation.[173] The advent of the automobile allowed Atlanta's suburban expansion, and the building of its airfield in the 1920s ensured Atlanta's continuing importance as a regional hub.[174] Atlanta experienced massive growth following World War II, which it responded to through annexation and building more roads.[175] This massive suburban expansion continued during the rest of the century; the metropolitan region doubled in population from two million to more than four million between 1980 and 2000.[176] Atlanta was the second-fastest growing metropolitan region in the United States during the 1990s.[177] Although Atlanta remains quite segregated, distribution patterns have changed as more African-Americans have moved into its suburbs.[178]

Atlanta metropolitan regional governance takes place through the Atlanta Regional Commission, which has been designated by state law as both a Metropolitan Area Planning and Development Commission and a Regional

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[170] "According to the 2010 U.S. census, the population of Atlanta is 420,003, although the metropolitan area (comprising twenty-eight counties and more than 6,000 square miles) has a population of more than 5.2 million." *Id.*

[171] *See* MULLER, CONTEMPORARY SUBURBAN AMERICA, *supra* note 16, at 26–49; Muller, *Transportation and Urban Form*, *supra* note 16, at 80–81.

[172] Ambrose, *Atlanta*, *supra* note 167.

[173] *Id.*

[174] *Id.*

[175] *Id.*

[176] *Id.*

[177] *Id.*

[178] *Id.* For additional resources on Atlanta's metro-regional development, see generally 1 FRANKLIN M. GARRETT, ATLANTA AND ENVIRONS: A CHRONICLE OF ITS PEOPLE AND EVENTS, 1820S–1870S (2011) (providing comprehensive history of Atlanta from the 1820s to the 1870s); 2 FRANKLIN M. GARRETT, ATLANTA AND ENVIRONS: A CHRONICLE OF ITS PEOPLE AND EVENTS, 1880S–1930S (1969) (providing comprehensive history of Atlanta from the 1880s to the 1930s); 3 HAROLD M. MARTIN, ATLANTA AND ENVIRONS: A CHRONICLE OF ITS PEOPLE AND EVENTS, 1940S–1970S (2011) (providing comprehensive history of Atlanta from the 1940s to the 1970s); SPRAWL CITY: RACE, POLITICS, AND PLANNING IN ATLANTA (Robert D. Bullard et al. eds., 2000) (analyzing the development of Atlanta's worsening urban sprawl problem, with particular emphasis on its link to race and class); William Campbell, *Urban Holism: The Empowerment Zone and Economic Development in Atlanta*, 26 FORDHAM URB. L.J. 1411 (1999) (explaining how Atlanta has reduced violent crime while increasing its population through holistic development); James E. Kundell & Margaret Myszewski, *Urban Sprawl*, NEW GA. ENCYCLOPEDIA, http://www.georgiaencyclopedia.org/articles/geography-environment/urban-sprawl, *archived at* http://perma.cc/EP7D-VGV4 (last edited on Oct. 2, 2014) (summarizing environmental impacts of urban sprawl in Atlanta metro region).

Commission.[179] Initially created as the Metropolitan Planning Commission in 1947—when it included two counties and the city of Atlanta—the Atlanta Regional Commission now engages in intergovernmental coordination and regional planning for ten counties and the city of Atlanta.[180]

The metro region also has more specialized structures functional at that regional level to address transportation concerns. For example, the Metropolitan Atlanta Regional Transit Authority (MARTA) has worked since it was statutorily authorized in the 1960s to create regional-level solutions to transportation.[181] The Georgia Regional Transportation Authority was established by state statute in 1999 to address air quality and transportation mobility across a thirteen-county region.[182]

Map 1 displays the current Atlanta metropolitan region, organized by city type. Both the at-risk segregated and affluent-job center suburbs are physically located in the inner rings, close to the center city. The bedroom-developing suburbs and at-risk, lower-density suburbs comprise the outer rings, where more of the expansion takes place.

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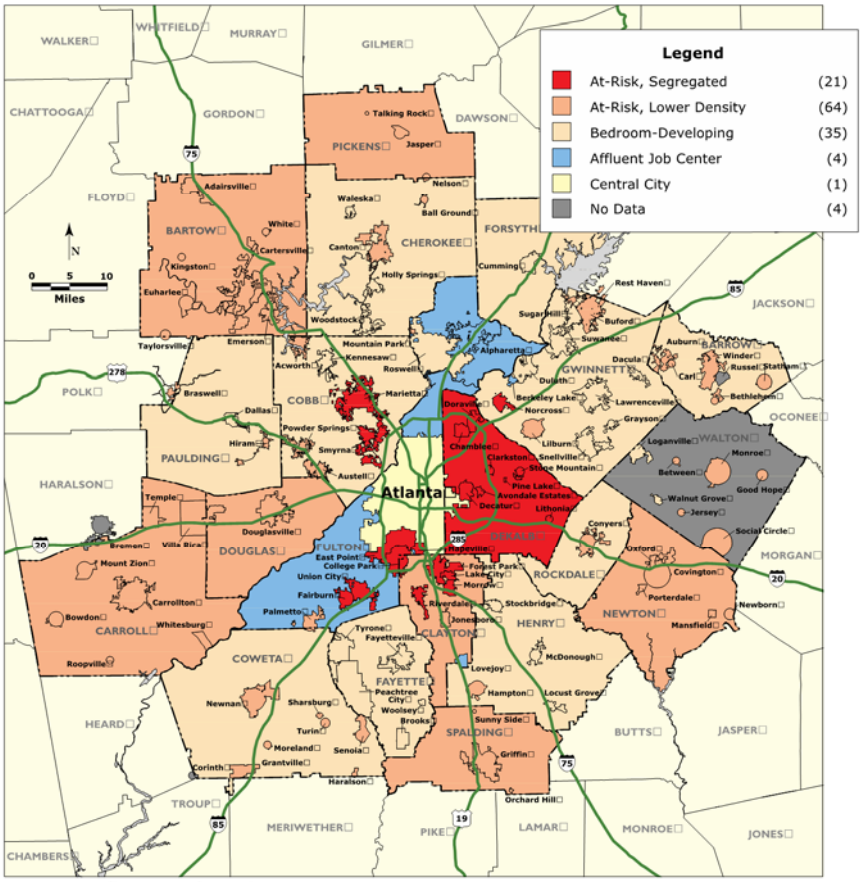
[179] Atlanta Reg'l Comm'n, *About ARC*, http://www.atlantaregional.com/about-us/overview, *archived at* http://perma.cc/BP6B-MEU9 (last visited Sept. 12, 2014).

[180] *Id.*; Atlanta Reg'l Comm'n, *ARC History, Funding and Membership*, http://www.atlantaregional.com/about-us/overview/history-funding--membership, *archived at* http://perma.cc/XTM6-6T7Z (last visited Sept. 12, 2014).

[181] Metro. Atlanta Rapid Transit Auth., *MARTA's Past and Future*, http://www.itsmarta.com/marta-past-and-future.aspx, *archived at* http://perma.cc/6BRE-3BLQ (last visited Sept. 12, 2014).

[182] GA. REG'L TRANSP. AUTH., OVERVIEW, *available at* http://www.grta.org/about_us/pdf/GRTA_Fact_Sheet.pdf, *archived at* http://perma.cc/8P3Q-AWFH (last visited Feb. 1, 2014). A report by The Brookings Institution Center on Urban and Metropolitan Policy discussed the creation of the Georgia Regional Transportation Authority as a positive step in the metro region's efforts to address sprawl. BROOKINGS INST. CTR. ON URBAN & METRO. POLICY, MOVING BEYOND SPRAWL: THE CHALLENGE FOR METROPOLITAN ATLANTA 36 (2000), *available at* http://www.brookings.edu/~/media/research/files/reports/2000/3/atlanta/atlanta.pdf, *archived at* http://perma.cc/E74N-J7SL.

Map 1: Atlanta Metropolitan Region by City Type



Data Source: Metropolitan Area Research Corporation.

As displayed in Table 2 below, although the center city in the Atlanta metropolitan region is active in climate change networks at every level, its suburbs generally show very low levels of participation in any network. Its affluent job centers and bedroom-developing communities are the most active group, but the sample size of affluent job centers is very low and the participation rate of bedroom-developing communities is still under 20% in any network. Overall, the Atlanta metro region's cities are more active in the metropolitan regional network than in national and international networks.

Table 2: Atlanta Metropolitan Region: Participation in Climate Change Related Networks by City Type[183]

	Central City (1)	At-Risk, Segregated (20)	At-Risk, Lower Density (56)	Bedroom-Developing (24)	Affluent Job Center (2)	No Data/ Recently Incorporated (6)
ICLEI Member	1 (100%)	1 (5%)	0	0	0	0
Nantes Declaration	0	0	0	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0
Mexico City Pact[184]	0	0	0	0	0	0
Copenhagen City Climate Catalogue	1 (100%)	0	0	0	1 (50%)	0
carbon*n* Cities Climate Registry[185]	1 (100%)	0	0	0	0	0
Mayors Agreement	1 (100%)	2 (10%)	0	1 (4.2%)	1 (50%)	0
Urban Sustainability Directors Network	1 (100%)	1 (5%)	0	0	0	0
Atlanta Regional Commission Certified Green Communities	1 (100%)	3 (15%)	1 (1.8%)	4 (16.7%)	1 (50%)	2 (33%)

[183] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[184] *See* The Mex. City Pact, *Signatories*, http://www.mexicocitypact.org/en/the-mexico-city-pact-2/list-of-cities/, *archived at* http://perma.cc/W2PX-699P (last visited Oct. 11, 2014).

[185] *See* carbon*n* Climate Registry, *City Search*, http://citiesclimateregistry.org/data/, *archived at* http://perma.cc/9VZT-Q6SR (last visited Oct. 27, 2014).

B. Chicago

Chicago, the third-largest metropolitan region in the United States,[186] also has a history of growth and development tied to transportation.[187] Its combination of water and railroad access with its central location made it an early economic hub that included agricultural products, stockyards, and industry.[188] Streetcars, elevated rail lines, and the interurban railroad allowed population expansion into suburban areas in the late nineteenth and early twentieth century, an expansion which was at times motivated by communities forming around the prohibition of liquor.[189] Segregation also shaped Chicago's patterns of development; racially restrictive covenants limited where new minority residents could live.[190]

Chicago's evolution into a mature metropolis took place over the course of the mid-to-late twentieth century.[191] The development of interstate freeways, paired with state and county highways, allowed for greater suburbanization in the mid-twentieth century.[192] At the same time, urban renewal projects reshaped existing communities.[193] Deindustrialization and the emergence of technology and service industries at the end of the twentieth century further shaped Chicago's pattern of metropolitan development.[194] New urban centers emerged in the suburbs, with many white-collar workers no longer commuting into the center city, but instead from suburb to suburb.[195]

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[186] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, *supra* note 168.

[187] *See* Ann Durkin Keating, *Metropolitan Growth*, ENCYCLOPEDIA OF CHI., http://www.encyclopedia.chicagohistory.org/pages/821.html, *archived at* http://perma.cc/Z3ME-RRR6 (last visited Oct. 27, 2014).

[188] *Id.*

[189] *Id.*

[190] *Id.*

[191] *See id.*

[192] *See id.*

[193] *Id.*

[194] *See id.*

[195] *See id.* For additional resources on the Chicago metropolitan region's development, see GLEN E. HOLT & DOMINIC A. PACYGA, CHICAGO: A HISTORICAL GUIDE TO THE NEIGHBORHOODS, THE LOOP AND SOUTH SIDE (1979); DOMINIC A. PACYGA, CHICAGO: A BIOGRAPHY (2009); DOMINIC A. PACYGA, POLISH IMMIGRANTS AND INDUSTRIAL CHICAGO, WORKERS ON THE SOUTH SIDE, 1880–1922 (1991); Ann Durkin Keating, *Chicagoland: More than the Sum of Its Parts*, 30 J. URB. HIST. 213 (2004); Jon B. DeVries & D. Bradford Hunt, *Chicago in Plan: An Insiders' Discourse on City's History, Challenges Ahead*, URB. LAND, Oct. 10, 2013, *available at* http://urbanland.uli.org/planning-design/chicago-in-plan-insiders-discourse-on-citys-history-challenges-ahead/, *archived at* http://perma.cc/86VB-R3XG; Arnold R. Hirsch, *Urban Renewal*, ENCYCLOPEDIA OF CHI., http://www.encyclopedia.chicagohistory.org/pages/1295.html, *archived at* http://perma.cc/HST-69YM (last visited Oct. 27, 2013); Carl Smith, *The Plan of Chicago*,

Chicago's metro-regional governance takes place under the auspices of the Chicago Metropolitan Agency for Planning (CMAP).[196] CMAP serves as the official regional planning organization for the seven northeastern Illinois counties that comprise the metro region.[197] It was created in response to 2005 state legislation that united the functions of the metro region's two primary regional planning organizations, the Chicago Area Transportation Study (transportation planning) and the Northeastern Illinois Planning Commission (land use planning).[198] CMAP was tasked with developing and guiding the implementation of a comprehensive regional plan—Chicago's first since its 1909 *Plan of Chicago*—which it completed in 2010.[199] This plan, GO TO 2040, focuses on coordinated strategies that will assist the efforts of the region's 284 communities on transportation, housing, economic development, open space, the environment, and other quality-of-life issues.[200]

Map 2 displays the metropolitan region's current pattern of development. Its first-ring suburbs largely consist of at-risk segregated and older communities plus some of its developed job centers. With limited exceptions, the affluent and very affluent job centers form the next ring, and the at-risk low-density communities and bedroom-developing communities comprise its outer perimeter.

ENCYCLOPEDIA OF CHI., http://www.encyclopedia.chicagohistory.org/pages/10537.html, *archived at* http://perma.cc/KEK3-E2MZ (last visited Oct. 27, 2013).

[196] Chi. Metro. Agency for Planning, *About*, http://www.cmap.illinois.gov/about, *archived at* http://perma.cc/7MZT-4PVK (last visited Feb. 2, 2014); Chi. Metro. Agency for Planning, *GO TO 2040*, http://www.cmap.illinois.gov/about/2040, *archived at* http://perma.cc/LJS8-DELE (last visited Sept. 23, 2014).

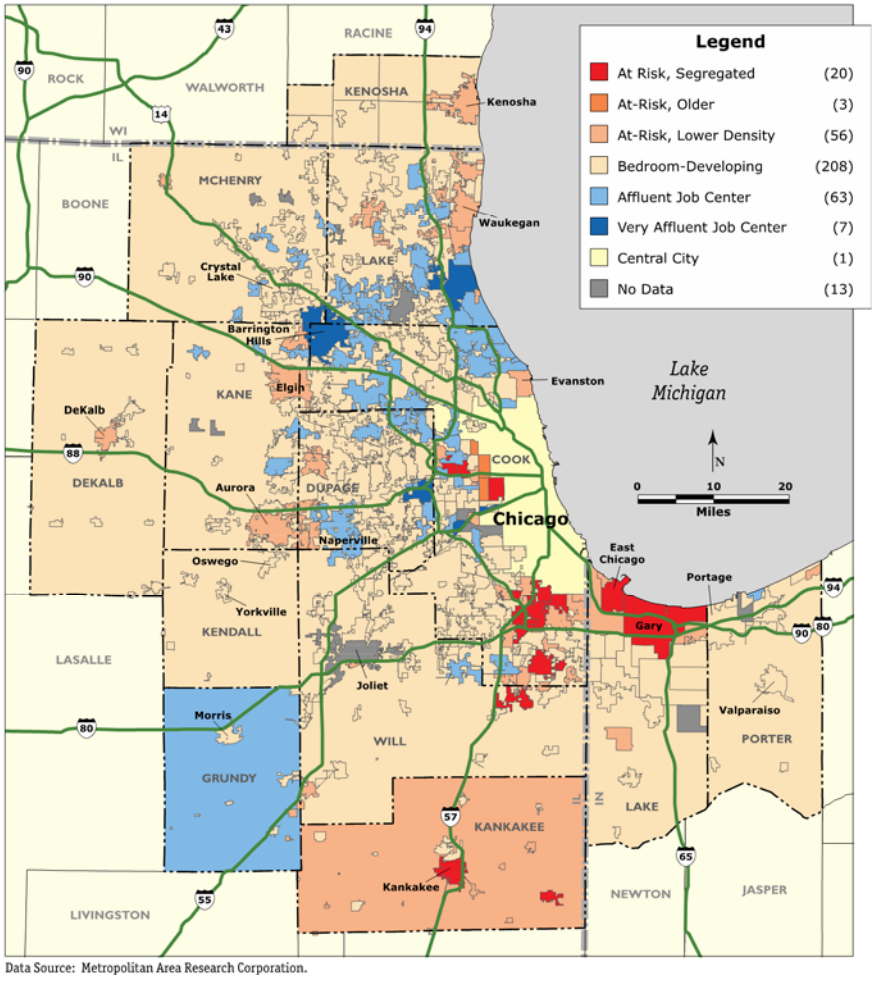
[197] Chi. Metro. Agency for Planning, *About*, *supra* note 196.

[198] KAREN SAVAGE ET AL., CORRIDOR APPROACHES TO INTEGRATING TRANSPORTATION AND LAND USE 4 (June 2009), *available at* http://onlinepubs.trb.org/onlinepubs/archive/notesdocs/NCHRP08-36(86)_FR.pdf, *archived at* http://perma.cc/GUP9-6RY2.

[199] Chi. Metro. Agency for Planning, *Fact Sheet: The Chicago Metropolitan Agency for Planning and GO TO 2040*, http://www.cmap.illinois.gov/about/for-media/ipk-10-13-10/fact-sheet, *archived at* http://perma.cc/B7T3-7GYQ (last visited Sept. 11, 2014).

[200] Chi. Metro. Agency for Planning, *GO TO 2040*, *supra* note 196.

Map 2: Chicago Metropolitan Region by City Type



Data Source: Metropolitan Area Research Corporation.

As Table 3 indicates, Chicago's center city—like Atlanta's—shows a much higher participation rate than its suburbs. However, its suburbs overall show more involvement in climate change networks than ones in Atlanta. Interestingly, the highest levels of involvement are in the national-scale Mayors Agreement and corresponding commitments in the Copenhagen City Climate Catalogue. Chicago's at-risk older suburbs show especially high activity levels, but they are a small sample group. There is enough participation by each of the city types in many of the networks that those cities could potentially be used as models for other cities of their type.

Table 3: Chicago Metropolitan Region: Participation in Climate Change Related Networks by City Type[201]

	Central City (1)	At-Risk, Segregated (18)	At-Risk, Lower Density (18)	At-Risk, Older (3)	Bedroom-Developing (89)	Affluent Job Center (41)	Very Affluent Job Center (7)	No Data (4)
ICLEI Member	1 (100%)	0	1 (5.6%)	1 (33.3%)	3 (3.4%)	1 (2.4%)	1 (14.3%)	0
Nantes Declaration	0	0	0	0	0	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0	0	0
Mexico City Pact[202]	0	0	0	0	0	0	0	0
Copenhagen City Climate Catalogue	1 (100%)	2 (11.1%)	4 (22.2%)	2 (66.7%)	13 (14.6%)	5 (12.2%)	1 (14.3%)	0
carbon*n* Cities Climate Registry Reporting Cities[203]	0	0	1 (5.6%)	1 (33.3%)	0	0	0	0
Mayors Agreement	1 (100%)	2 (11.1%)	4 (22.2%)	2 (66.7%)	15 (16.9%)	6 (14.6%)	1 (14.3%)	1 (25%)
Urban Sustainability Directors Network	1 (100%)	0	1 (5.6%)	1 (33.3%)	0	0	0	0
EPA Region 5 Community Climate Change Initiative Partner	1 (100%)	2 (11.1%)	1 (5.6%)	1 (33.3%)	7 (7.9%)	3 (7.3%)	0 (14.3%)	0
Chicago Wilderness	1 (100%)	0	0	1 (33.3%)	5 (5.6%)	9 (22%)	1 (14.3%)	0

[201] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[202] *See* The Mex. City Pact, *Signatories*, *supra* note 184.

[203] *See* carbon*n* Climate Registry, *City Search*, *supra* note 185.

C. Denver

Denver's history began later than some of the other metropolitan regions in this study and follows a somewhat different pattern that is tied to its physical geography. It emerged not because of its location near railroads or water, but because gold was discovered near there in 1858.[204] Denver's early years were somewhat precarious, as prospectors rushed to gold in the nearby mountain town of Central City, only to return to Denver's more hospitable climate.[205] Denver also experienced the Civil War, and fires and floods devastated it in its first decade.[206] Denver's place as a regional hub was solidified by citizens building their own rail line to join the Union Pacific when Denver was bypassed and by the discovery of silver in Leadville.[207]

Denver experienced economic crisis in the late nineteenth and early twentieth century when the price of silver collapsed and the agricultural and ranching industries experienced a severe drought.[208] Denver remained highly dependent on mineral, agricultural, and ranching industries until after World War II when gasoline rationing ended and the oil business began to boom in and around Denver.[209] Investments by private industry and federal government—paired with the expansion of roads, wider accessibility of automobiles, and a major airport—allowed for significant suburban expansion.[210] Continued population expansion paired with limited public transportation has led to problems of sprawl and congestion, which Denver has tried to alleviate with recent transportation projects.[211] As of the 2012 census estimates, Denver is the sixteenth largest metropolitan area in the United States.[212]

Denver's efforts at metro-regional governance began in 1955, when thirty-nine officials agreed to create a planning entity, the Inter-County Regional Planning Association, for what was then a four-county region.[213] This entity changed its name

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[204] CARL ABBOTT ET AL., COLORADO: A HISTORY OF THE CENTENNIAL STATE 44 (4th ed. 2005); Denver Convention & Visitors Bureau, *Denver History*, http://www.denver.org/metro/history, *archived at* http://perma.cc/FMR6-3X25 (last visited Oct. 27, 2014).

[205] *See* ABBOTT ET AL., *supra* note 204, 51–54.

[206] *Id.* at 59–60, 63.

[207] *See id.* at 79–83, 92.

[208] *Id.* at 102–03.

[209] *See id.* at 315, 322.

[210] *See id.* at 333–36, 323–25.

[211] For a discussion of the sprawl and smog problems and progress in addressing them, see David Olinger, *We Caused Sprawl Ourselves*, DENVER POST.COM (Feb. 7, 1999), http://extras.denverpost.com/news/gro0207a.htm, *archived at* http://perma.cc/E4VG-U3KH; *Decade After 'Brown Cloud,' Denver Air Clears*, USA TODAY (Aug. 10, 2002), http://usatoday30.usatoday.com/weather/news/2002/2002-08-10-denver-smog.htm, *archived at* http://perma.cc/B77K-M4E8.

[212] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, *supra* note 168.

[213] DENVER REG'L COUNCIL OF GOV'TS, SHAPING THE REGION WITH ONE VOICE (2005), *available at* https://drcog.org/sites/drcog/files/resources/50th%20DRCOG%20history

in 1968 to its current one, the Denver Regional Council of Governments.[214] This Council is a nonprofit association of local governments that covers the now nine-county Denver region with representation from its member cities and counties.[215] It has developed several long-range regional plans over the years. The Council's regional plan "provides policies designed to guide where, how much and when growth and development occur in the region, addressing development, transportation needs and environmental quality."[216] Its current iteration, *Metro Vision*, plans through the year 2035 and includes a 921-mile voluntary urban growth boundary/area.[217]

Map 3 shows the Denver Metropolitan Region's development pattern. It looks very different from the other urban areas studied because it has very few developed job centers and city types are more clustered. At-risk segregated and older suburbs are closest to the center and form most of the suburban area. There is a limited zone of bedroom-developing communities south of the urban core.

%20.pdf, *archived at* http://perma.cc/PU3P-9NX7.

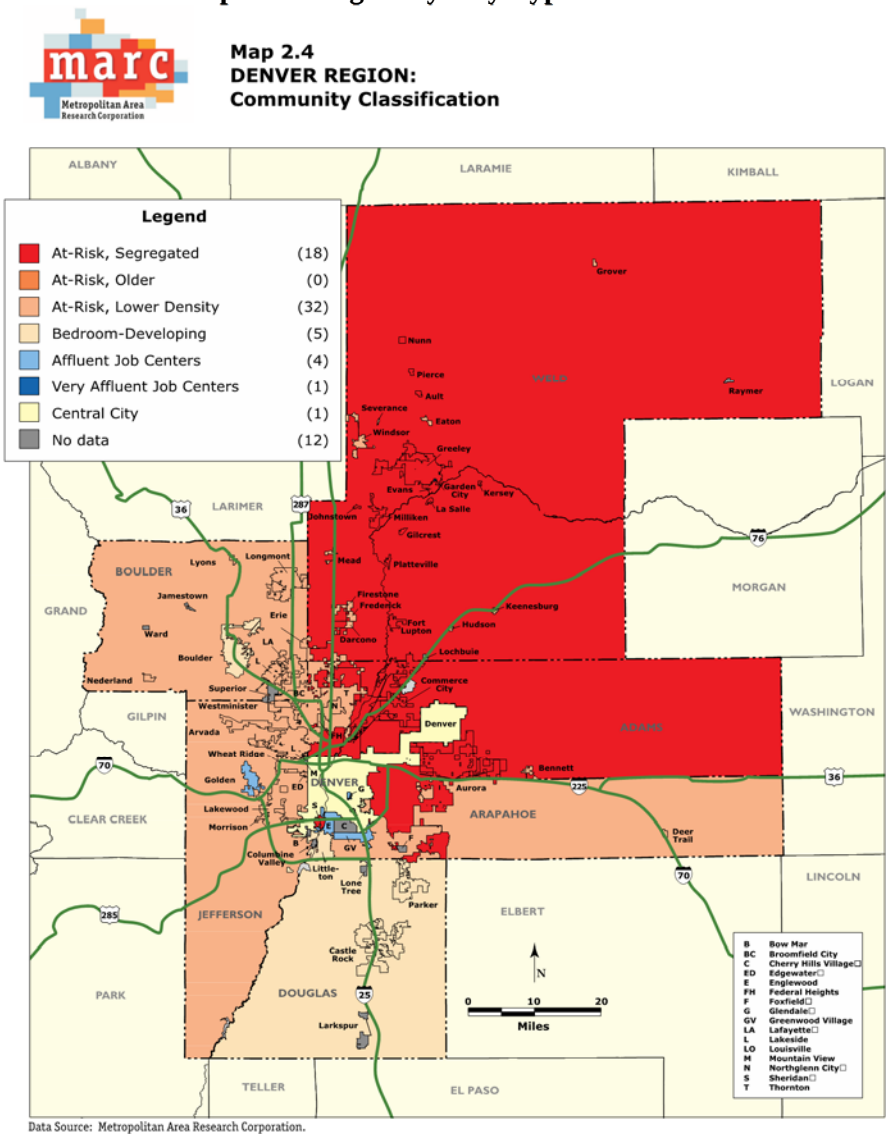
[214] *Id.*

[215] *See* Denver Reg'l Council of Gov'ts, *About DRCOG*, http://drcog.org/about-drcog/about-drcog, *archived at* http://perma.cc/XB3F-CERW (last visited Sept. 23, 2014); Denver Reg'l Council of Gov'ts, *Member Governments*, http://drcog.org/about-drcog/member-governments, *archived at* http://perma.cc/TN4D-XSRZ (last visited Sept. 23, 2014).

[216] DENVER REG'L COUNCIL OF GOV'TS, WITH ONE VOICE: ENHANCING AND PROTECTING THE QUALITY OF LIFE IN OUR REGION (2013), *available at* http://www.drcog.org/documents/2009%20With%20One%20Voice%20Brochure%204%20web.pdf, *archived at* http://perma.cc/E6BQ-6BZL.

[217] *Id.*

Map 3: Denver Metropolitan Region by City Type



As indicated in Table 4, like the other metro regions, Denver's center city has more overall participation than its suburban cities. The Denver metro region, however, has fewer total cities than some of the other metropolitan regions, and some recently incorporated cities make especially large data gaps. Also, while Boulder—categorized as a bedroom-developing community—has similar participation rates to Denver, boosting that category, participation by other cities in the region is sporadic. These networks, even at the statewide level, seem to be playing a very limited role in local behavior in this metro region beyond Denver and Boulder.

Table 4: Denver Metropolitan Region: Participation in Climate Change Related Networks by City Type[218]

	Central City (1)	**At-Risk, Segregated (17)**	**At-Risk, Lower Density (28)**	**Bedroom-Developing (4)**	**Affluent Job Center (4)**	**No Data/Recently Incorporated (14)**
ICLEI Member	1 (100%)	1 (5.9%)	0	0	0	0
Nantes Declaration	0	0	0	1 (25%)	0	0
Durban Adaptation Charter	0	0	0	0	0	0
Mexico City Pact[219]	0	0	0	1 (25%)	0	0
Copenhagen City Climate Catalogue	1 (100%)	0	1 (3.6%)	1 (25%)	0	0
carbon*n* Cities Climate Registry[220]	0	0	0	0	0	0
Mayors Agreement	1 (100%)	0	2 (7.1%)	1 (25%)	0	0
Urban Sustainability Directors Network	1 (100%)	0	0	1 (25%)	0	0
Colorado Climate Network	1 (100%)	1 (5.9%)	0	1 (25%)	0	0

[218] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[219] *See* The Mex. City Pact, *Signatories*, *supra* note 184.

[220] *See* carbon*n* Climate Registry, *City Search*, *supra* note 185.

D. New York City

New York was first settled in the 1600s and became the largest U.S. city by 1820.[221] Its next massive expansion occurred in 1898 when five counties merged to become the five boroughs that still comprise New York City.[222] The New York City metropolitan region is the largest by population in the United States according to the 2012 census estimates.[223]

New York's metro-regional governance was deeply influenced by the above-mentioned early Chicago efforts.[224] Dr. Marc Weiss, Chairman and CEO of Global Urban Development, explains:

> The famous 1909 Plan of Chicago was essentially a regional plan, and two of the leading business patrons of that plan, Charles Norton and Frederic Delano, moved to New York City a decade later and helped spearhead an even more ambitious effort, the Regional Plan of New York and its Environs. This plan, completed at the end of the 1920s, served as a blueprint for urban investment and development in the tri-state region for a generation. New York City, which was reinvented in 1898 by consolidating five separate counties to instantly become the world's largest city, was encompassed by the world's largest urban region that crossed three different states, New York, New Jersey, and Connecticut.[225]

Metro-regional planning in present-day New York takes place through both governmental and non-profit auspices. New York's official metropolitan planning organization is the New York Metropolitan Transportation Council, which focuses

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[221] Tim Lambert, *A Brief History of New York City*, http://www.localhistories.org/newyork.html, *archived at* http://perma.cc/VF2V-CQ6X (last visited Sept. 23, 2014); *A History of New York City*, NEWYORK.COM, http://www.newyork.com/resources/history-new-york-city/, *archived at* http://perma.cc/JZ3N-YN34 (last visited Oct. 27, 2014).

[222] *The 100 Year Anniversary of the Consolidation of the 5 Boroughs into New York City*, NEW YORK CITY, http://www.nyc.gov/html/nyc100/html/classroom/hist_info/100aniv.html, *archived at* http://perma.cc/63G4-6LW3 (last visited Oct. 27, 2014).

[223] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, *supra* note 168.

[224] For a discussion of the Chicago efforts, see *supra* text and accompanying notes 196–200.

[225] MARC A. WEISS, METROPOLITAN GOVERNANCE AND STRATEGIC PLANNING IN THE US: A REPORT TO THE STRATEGIC METROPOLITAN PLAN OF BARCELONA 1–2 (2003), *available at* http://www.globalurban.org/metro_governance.htm, *archived at* http://perma.cc/LH54-PXTU.

primarily on transportation issues in its planning and coordinating role.[226] However, the Regional Plan Association, a non-profit entity that emerged from New York's first regional planning process, continues to play a critical role in broad long-range and issue-specific planning.[227] It has produced three regional plans, the latest in 1996, and works on a range of land use, transportation, environmental, and economic development and opportunity issues.[228]

Map 4 displays New York City's metro-regional development pattern, including the organization of different city types. New York's development pattern is similar to that of most other metro regions, but its physical geography, especially the water that constrains its growth in places, and the differences among the five boroughs alter that pattern somewhat. For the most part, at-risk older and segregated suburbs tend to form the inner core, followed by a ring of affluent and very affluent job centers, and an outer ring of low-density at-risk and bedroom developing suburbs. But some of the affluent and very affluent job centers abut the center city, especially on the Queens side, and others are at the very edge of the metropolitan region.

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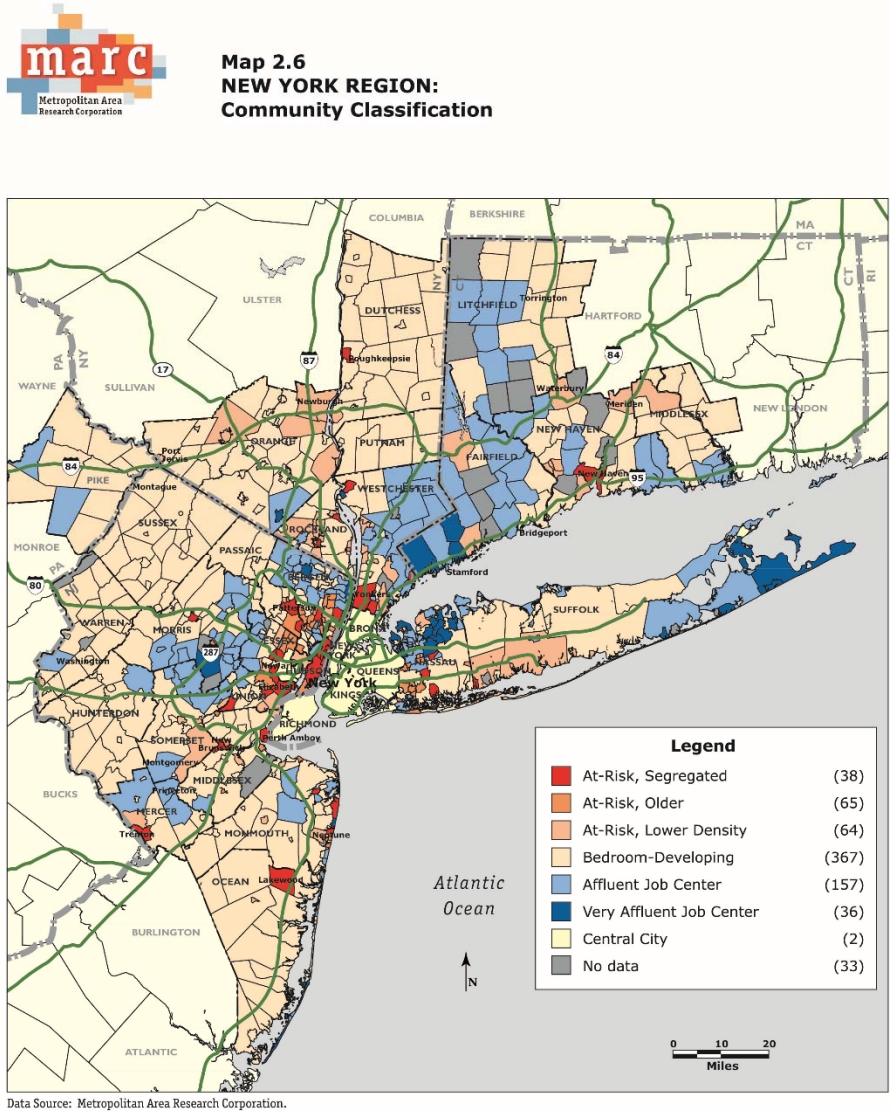
[226] *See* N.Y.C. Metro. Transp. Council, *About NYMTC*, http://www.nymtc.org/, *archived at* http://perma.cc/9T7P-F8FJ (follow "About NYMTC" hyperlink) (last visited Sept. 23, 2014).

[227] *See* Reg'l Plan Ass'n, *Our History*, http://www.rpa.org/about/history, *archived at* http://perma.cc/YW9F-TJCZ (last visited Sept. 23, 2014).

[228] *See id.*

Map 4: New York City Metropolitan Region by City Type



Data Source: Metropolitan Area Research Corporation.

As Table 5 displays, like in other metropolitan regions, New York's center city is participating more in networks than other city types. However, similar to Chicago, there is some participation in many networks across the suburban categories, with the most participation happening in the Mayors Agreement and the associated commitments in the Copenhagen City Climate Catalogue rather than in the state-based network. This pattern suggests cities in each category may serve as models for other cities in that category, which might boost participation.

Table 5: New York Metropolitan Region: Participation in Climate Change Related Networks by City Type[229]

	Central City (2)	At-Risk, Segregated (29)	At-Risk, Lower Density (33)	At-Risk, Older (53)	Bedroom-Developing (93)	Affluent Job Center (84)	Very Affluent Job Center (22)	No Data (11)
ICLEI Member	2 (100%)	2 (6.9%)	4 (12.1%)	3 (5.7%)	9 (9.7%)	10 (11.9%)	0	1 (9.1%)
Nantes Declaration	0	0	0	0	0	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0	0	0
Mexico City Pact[230]	0	0	0	0	0	0	0	0
Copenhagen City Climate Catalogue	2 (100%)	9 (31%)	10 (30.3%)	7 (13.2%)	19 (20.4%)	10 (11.9%)	1 (4.5%)	1 (9.1%)
carbon*n* Cities Climate Registry[231]	0	0	0	0	1 (1.2%)	0	0	0
Mayors Agreement	2 (100%)	9 (31%)	12 (36.4%)	8 (15.1%)	20 (21.5%)	12 (14.3%)	0	1 (9.1%)
Urban Sustainability Directors Network	2 (100%)	1 (3.4%)	0	0	0	0	0	0
New York Climate Smart Communities	0	3 (10.3%)	5 (15.2%)	1 (1.9%)	12 (12.9%)	12 (14.3%)	0	1 (9.1%)

[229] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[230] *See* The Mex. City Pact, *Signatories*, *supra* note 184.

[231] *See* carbon*n* Climate Registry, *City Search*, *supra* note 185.

E. San Francisco

San Francisco began as a colonial mission in the 1700s, but did not become part of the United States until the 1848 Treaty of Guadalupe.[232] It expanded in the middle of the nineteenth century due to the California Gold Rush and the resulting influx of Chinese immigrants, but then faced a devastating cholera epidemic.[233] Its transformation into a major U.S. metropolitan region took place in the second half of the nineteenth century.[234] It then faced devastating setbacks at the turn of the twentieth century, however, due to a plague epidemic and major earthquake.[235] San Francisco's post-earthquake rebuilding helped create the modern scheme of its center city.[236]

In the early twentieth century, San Francisco considered following New York's example by annexing surrounding counties as boroughs, but that Greater San Francisco movement was ultimately defeated.[237] However, the construction of the Bay and Golden Gate bridges in the 1930s helped to create greater physical regional interconnection.[238] Post-World War II expansion and urban renewal provided further redefinition of the metro region; the mayor used eminent domain to raze and rebuild numerous neighborhoods and a revolt against freeways limited their expansion.[239]

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[232] *See* S.F. Ctr. for Econ. Dev., *A Brief History*, http://sfced.org/case-for-business/a-brief-history/, *archived at* http://perma.cc/XBA8-VAMJ (last visited Oct. 27, 2014); *Arrival of Europeans and Early Settlement*, SF-INFO.ORG, http://www.sf-info.org/history/d3/arrival-of-europeans-and-early-settlement, *archived at* http://perma.cc/CF9C-MJEX (last visited Sept. 23, 2014).

[233] *San Francisco Gold Rush*, SF-INFO.ORG, http://www.sf-info.org/history/d4/gold-rush, *archived at* http://perma.cc/6YQN-5HBJ (lasted visited Sept. 23, 2014).

[234] *See* S.F. Ctr. for Econ. Dev., *supra* note 232.

[235] *1906 San Francisco Earthquake and Fire*, SF-INFO.ORG, http://www.sf-info.org/history/d7/1906-earthquake-and-fire, *archived at* http://perma.cc/V2JG-HTTR (lasted visited Sept. 24, 2014); *Paris of the West*, SF-INFO.ORG, http://www.sf-info.org/history/d5/paris-of-the-west, *archived at* http://perma.cc/DDZ4-NQBC (lasted visited Sept. 24, 2014).

[236] *See Rebuilding San Francisco Following the 1906 Earthquake*, SF-INFO.ORG, www.sf-info.org/history/d8rebuilding, *archived at* http://perma.cc/RQQ6-DPEA (last visited Sept. 24, 2014).

[237] *"Greater San Francisco" Movement of 1912*, SF-INFO.ORG, http://www.sf-info.org/history/d9/greater-movement, *archived at* http://perma.cc/6LDL-3DY6 (last visited Sept. 24, 2014).

[238] *See* Golden Gate Bridge Highway Transp. Dist., *Frequently Asked Questions About the Golden Gate Bridge*, http://goldengatebridge.org/research/facts.php#Name, *archived at* http://perma.cc/WP7Z-KX79 (last visited Sept. 24, 2014); The S.F.-Oakland Bay Bridge Seismic Safety Projects, *Bay Bridge History*, http://baybridgeinfo.org/history, *archived at* http://perma.cc/7N9N-3SN4 (last visited Sept. 24, 2014).

[239] *See* David Habert, *Fifty Years of Redevelopment*, SPUR (Mar. 1, 1999), http://www.spur.org/publications/library/article/50yearsredevelopment03011999, *archived at* http://perma.cc/G7VB-H6ZV; *San Francisco After World War II*, SF-INFO.ORG,

In the 1980s, many skyscrapers were built, but as with the freeways, popular outcry led to land use restrictions that limited this building movement.[240] Since then, additional earthquakes and the dot com booms and crashes have helped to provide further redevelopment, expansion, and gentrification.[241] The San Francisco metropolitan region is the fifth largest in the United States as of the 2012 census estimates.[242]

San Francisco's metro-regional governance entity, the Bay Area Association of Governments, was established in 1961 and produced its first regional plan in 1970.[243] Its members include nine counties and 101 cities and towns in the San Francisco metro region.[244] The Association focuses on a wide range of planning issues—including "land use, environmental stewardship, energy efficiency, hazard mitigation, water resource protection, and hazardous waste management"—and has received state, national, and international recognition for its efforts.[245] Especially relevant to the focus of this Article, the Association is collaborating with the Metropolitan Transportation Commission to develop "the region's first Sustainable Communities Strategy (SCS) pursuant to state legislation.[246] The SCS, known as Plan Bay Area, will tackle pressing issues such as accommodating population growth while keeping the region affordable for all residents, preserving open space, protecting the environment, accommodating transportation needs, and reducing greenhouse gas emissions."[247]

Map 5 displays the metro region and the organization of the city types within it. Like Denver, its patterns show some of the typical urban form, but less so than some of the other metro regions. Many of the older and segregated at-risk suburbs are clustered around San Francisco and Oakland, the affluent job centers form a second ring, and at-risk lower density and bedroom communities are further out. But as the map shows, there are a number of exceptions to this pattern, in part due to the physical geography of the metro region's interaction with water and in part because

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http://www.sf-info.org/history/d11/wwii, *archived at* http://perma.cc/WH6H-DZL6 (last visited Sept. 9, 2014).

[240] *1980s: "Manhattanization" and Homelessness*, SF-INFO.ORG, http://www.sf-info.org/history/d13/homeless, *archived at* http://perma.cc/QKE5-FYWL (last visited Sept. 9, 2014).

[241] *1989 Loma Prieta Earthquake*, SF-INFO.ORG, http://www.sf-info.org/history/d14/1989-loma-prieta-earthquake, *archived at* http://perma.cc/VAS3-M484 (last visited Sept. 9, 2014); *Dot-Com Bubble*, SF-INFO.ORG, http://www.sf-info.org/history/d15/dot-com-bubble, *archived at* http://perma.cc/AM6J-S38A (last visited Sept. 9, 2014).

[242] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, *supra* note 168.

[243] ASS'N OF BAY AREA GOV'TS, ABOUT ABAG, *available at* http://www.abag.ca.gov/overview/overview.pdf, *archived at* http://perma.cc/RP4U-Q4DR (last visited Sept. 9, 2014).

[244] *Id.*

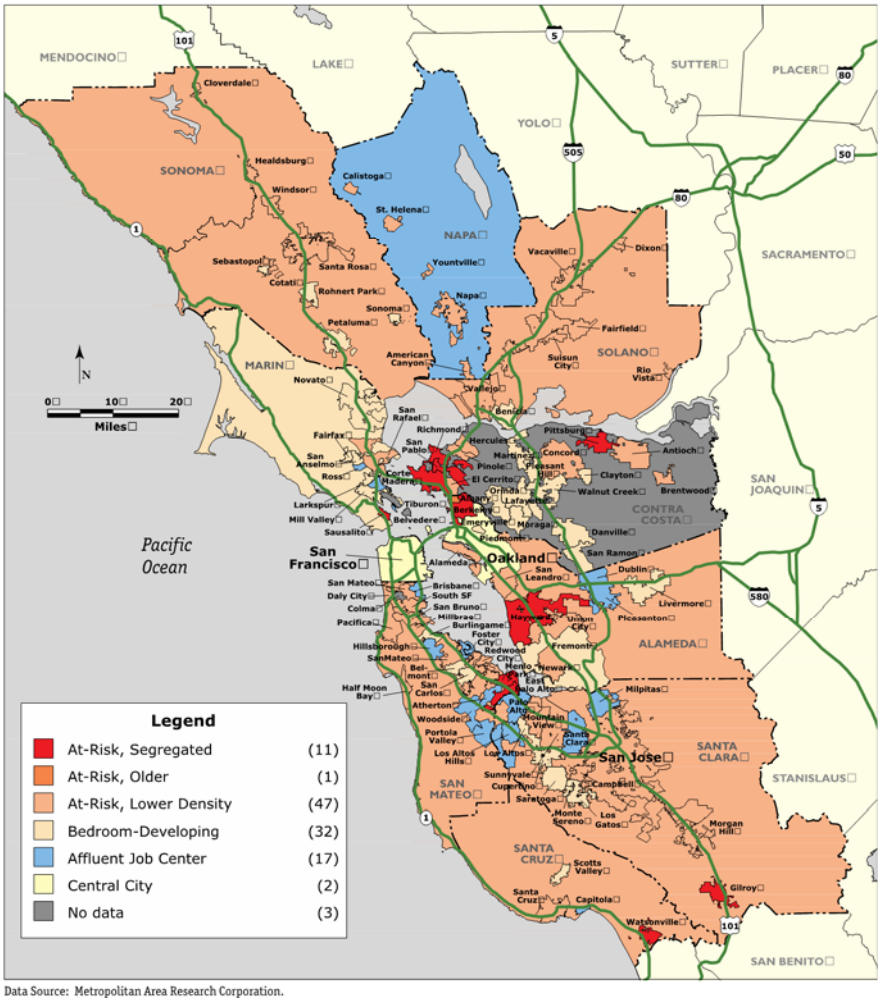
[245] *Id.*

[246] *Id.*

[247] *Id.*

one of the outer areas labeled as an affluent job center in the metro region is Napa Valley—a unique area with a well-established wine industry and related tourism.

Map 5: San Francisco Metropolitan Region by City Type



Data Source: Metropolitan Area Research Corporation.

As Table 6 illustrates, the San Francisco Metropolitan Region shows the highest level of participation of any of the metropolitan regions studied. Not only do its center cities, Oakland and San Francisco, both participate in many networks at national and international levels, but also every category of its suburbs show significant participation in networks at every level as well. This high level of participation may not be replicable in other metropolitan regions, as it may relate

more to the unique environment of California and this metropolitan region than to steps by the networks themselves. But, at the very least, there are many model cities in each category that could be used to encourage more participation.

Table 6: San Francisco Metropolitan Region: Participation in Climate Change Related Networks by City Type[248]

	Central City (2)	**At-Risk, Segregated (11)**	**At-Risk, Lower Density (41)**	**At-Risk, Older (1)**	**Bedroom-Developing (32)**	**Affluent Job Center (15)**	**No Data (2)**
ICLEI Member	2 (100%)	7 (63.6%)	22 (53.7%)	1 (100%)	14 (43.8%)	8 (53.3%)	1 (50%)
Nantes Declaration	0	0	0	0	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0	0
Mexico City Pact[249]	0	0	0	0	0	0	0
Copenhagen City Climate Catalogue	2 (100%)	3 (27.2%)	22 (53.7%)	1 (100%)	13 (40.6%)	9 (60%)	1 (50%)
carbon*n* Cities Climate Registry[250]	2 (100%)	0	3 (7.3%)	0	2 (6.3%)	1 (6.7%)	0
Cities for Climate Protection Campaign	2 (100%)	2 (18.2%)	4 (9.8%)	0	7 (21.9%)	0	0
Mayors Agreement	2 (100%)	5 (45.5%)	26 (63.4%)	1 (100%)	16 (50%)	9 (60%)	1 (50%)
Urban Sustainability Directors Network	1 (50%)	1 (9%)	1 (2.4%)	0	0	1 (6.7%)	0
Institute for Local Government-Beacon Award Participants	0	3 (27.3%)	5 (12.2%)	0	4 (12.5%)	2 (13.3%)	0

[248] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[249] *See* The Mex. City Pact, *Signatories*, *supra* note 184.

[250] *See* carbon*n* Climate Registry, *City Search*, *supra* note 185.

F. Twin Cities

As geographer John Borchert has explored in depth, the Twin Cities followed an urbanization pattern much like many of the other major metropolitan regions in the United States.[251] His *Atlas of Minnesota Resources and Settlement*, prepared for the Minnesota State Planning Agency with Donald Yaeger in 1968, explains that St. Paul, St. Anthony, and Minneapolis emerged due to their strategic locations for pioneer steamboat navigation and hydropower.[252] Prior to the post-World War II Freeway Era described by Muller, the Twin Cities urban area expanded along rail and streetcar transportation routes.[253] The widespread use of the automobile allowed for low-density settlement via paved roads to the countryside "over the high-amenity, rolling wooded, lake and moraine lands," physical attributes that also limited population density.[254] As the broader region transitioned from a natural-resources-based economy to one more focused on manufacturing and nationally-oriented services, the Twin Cities became "a 'hinge' area which combines access to the human resources of the region with access to the mid-western and national markets";[255] the Twin Cities experienced a significant population concentration in their metropolitan region—containing nearly half of Minnesota's population and one-quarter of the Upper Midwest's population according to a 1963 report—even as the population within that region decentralized.[256] Borchert noted that in the forty-year period preceding the 1980s, for example, the urban field—its urban circulation system defined by level of accessibility—of the Twin Cities increased from less than one thousand square miles to over fifteen thousand square miles.[257] This "expansion of metropolitan circulation systems, with accompanying decentralization, has weakened the historic regional center—the monumental downtown of the central city."[258]

The present day Twin Cities region—the fourteenth largest metropolitan region by 2012 census estimates[259]—shows a maturation of these patterns. Orfield and Luce documented in their in-depth study of the Twin Cities that the region contains 172 cities and ninety-seven townships and ranks as the fifth most fragmented among the

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[251] *See* JOHN R. BORCHERT & DONALD P. YAEGER, ATLAS OF MINNESOTA RESOURCES AND SETTLEMENT 187–88 (1968).

[252] *Id.*

[253] *Id.* at 188.

[254] *Id.*

[255] *See* JOHN R. BORCHERT & RUSSELL B. ADAMS, PROJECTED URBAN GROWTH IN THE UPPER MIDWEST: 1960–1975, at 24 (1964).

[256] *See id.* at 2; JOHN R. BORCHERT, THE URBANIZATION OF THE UPPER MIDWEST: 1930–1960, at iii, 36–37 (1963).

[257] *See* Borchert, *America's Changing Metropolitan Regions*, *supra* note 16, at 365.

[258] *Id.* at 368.

[259] U.S. Census Bureau, *Metropolitan and Micropolitan Statistical Areas*, *supra* note 168.

United States' fifty largest metropolitan areas.[260] Like in most major metropolitan areas, jobs and population in the Twin Cities have decentralized significantly over the last thirty years, with current growth concentrated in the outer suburbs; from 1990 to 2004, Minneapolis grew at 1.3% and St. Paul grew at 3.0%, as compared to the region's overall growth rate of 22.5%.[261] As this growth has occurred, suburban differentiation has taken place, with some suburbs, especially inner ones, increasingly reflecting the fiscal stresses and racial and poverty concentrations of the central cities, and other suburbs, especially outer ones, facing the complexities of rapid growth with inadequate infrastructure.[262] Only a small percentage of the region's suburban cities fit the traditional model of wealthy residents who commute into the central city.[263]

The Twin Cities area has one of the most extensive metro-regional governance structures in the United States.[264] Minnesota's experiment in metropolitan regional governance in its most significant urban area—the Twin Cities—began in 1967 when its legislature established the Met Council to meet new federal requirements for regional governance.[265] The Met Council was intended to build upon decades of ad hoc collaboration among the cities and to address concerns over land use planning, wastewater coordination, and transit funding.[266] Even before the Met Council's formal creation, the regional planning efforts in the Twin Cities formed an important part of state-wide land use planning approaches; for example, Borchert used regional governance in the Twin Cities as an example of why more regional planning was needed in Minnesota in his 1963 report.[267] As of January 2012, the Met Council listed 183 communities in its seven-county metro area.[268] The state legislature gradually expanded the Met Council's powers over time, and the council has played and continues to play a significant role in regional planning.[269] The Met Council also began in 2013 to consider new metro-regional efforts on climate change. As part of its ThriveMSP 2040 initiative, Met Council adopted a goal related

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[260] MYRON ORFIELD ET AL., REGION: PLANNING THE FUTURE OF THE TWIN CITIES 2 (2010).

[261] *Id.* at 14.

[262] *See id.* at 43–49.

[263] *Id.* at 46.

[264] *See id.* at 52–53. For other examples of well-developed metropolitan regional governments, see Nashville, Tennessee, Greater Nashville Regional Council, https://www.gnrc.org/, *archived at* http://perma.cc/WQY8-FBHV (last visited Oct. 29, 2014) and Portland, Oregon, Metro, http://www.oregonmetro.gov/, *archived* at http://perma.cc/A4KX-RNK2 (last visited Oct. 29, 2014).

[265] *See* ORFIELD, *supra* note 260, at 52–53.

[266] *See id.* at 52–80.

[267] BORCHERT, *supra* note 256, at 43.

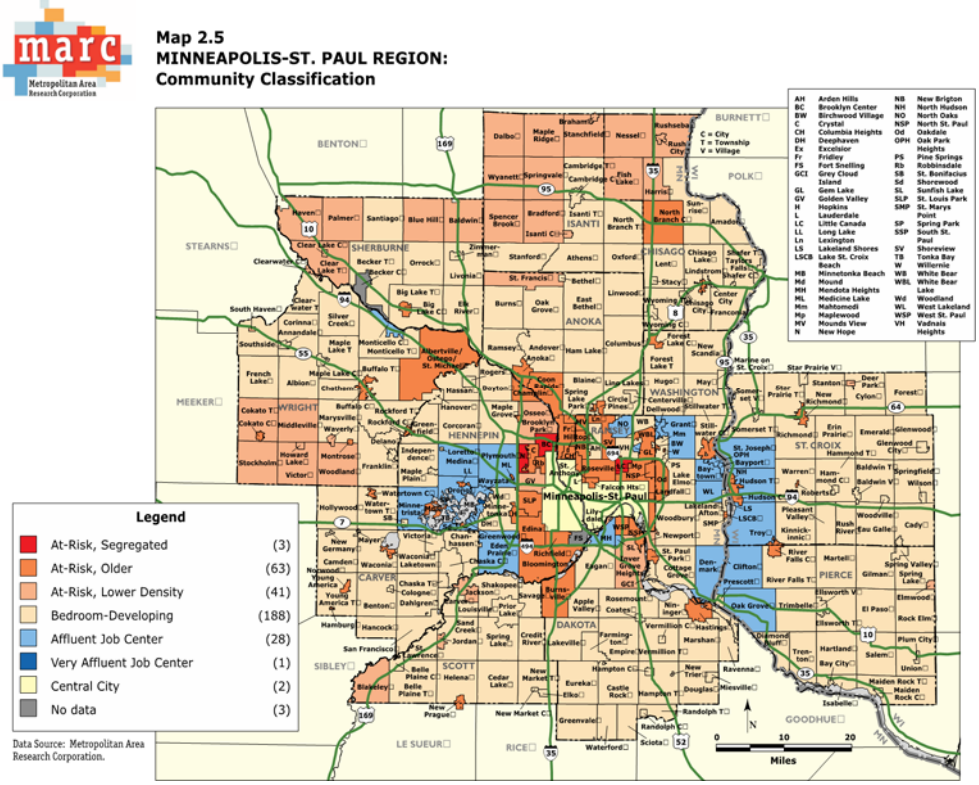
[268] Metro. Council, *List of Community Profiles*, http://stats.metc.state.mn.us/profile/list.aspx, *archived at* http://perma.cc/5UJB-ZHWM (last visited Sept. 11, 2014).

[269] Metro. Council, *Who We Are*, http://www.metrocouncil.org/About-Us/The-Council-Who-We-Are.aspx, *archived at* http://perma.cc/VYN2-H59G (last visited Sept. 9, 2014).

to climate change—"[a] resilient region minimizes its contributions to climate change and is prepared for the challenges and opportunities of a changing climate"—and is currently exploring a variety of approaches to implementation.[270]

Map 6 displays the Twin Cities metro-region organized by city type. With some exceptions, it follows a relatively typical pattern of suburban development rings. At-risk segregated and older suburbs form the first ring, affluent job centers the middle ring, and low-density at risk and bedroom developing suburbs the outer one.

Map 6: Twin Cities Metropolitan Region by City Type



[270] *See* Ethan Fawley, *Metropolitan Council: Addresses Climate Change in the Twin Cities*, FRESH ENERGY (July 19, 2013), http://fresh-energy.org/2013/07/metropolitan-council-address-climate-in-the-twin-cities/, *archived at* http://perma.cc/593D-TE6G.

As illustrated in Table 7, the Twin Cities follows the pattern of most of the other metropolitan regions in having significantly higher network participation in its central cities than suburbs. However, unlike some other regions, the participation rates are higher in state-wide networks than international and national ones. The only larger-scale network with significant participation from suburbs is the Mayors Agreement and the parallel commitments in the Copenhagen City Climate Catalogue that those cities made. The Twin Cities metropolitan region has enough participation in each city category to have some models for other cities of that type, but overall it shows less participation in larger-scale networks than other regions. Its comparatively high participation levels in state-wide networks suggest an opportunity for those networks to become feed-in points for involvement in larger-scale networks. A key question is whether those statewide networks focused on sustainability and energy produce equivalent results through their toolkits and step-by-step processes such that larger-scae networks are less important for these cities.

Table 7: Twin Cities Metropolitan Region: Participation in Climate Change Related Networks by City Type[271]

	Central City (2)	At-Risk, Segregated (3)	At-Risk, Lower Density (39)	At-Risk, Older (60)	Bedroom-Developing (184)	Affluent Job Center (30)	Very Affluent Job Center (1)	No Data (3)
ICLEI Member	2 (100%)	0	1 (2.6%)	3 (5%)	2 (1.1%)	0	0	0
Nantes Declaration	0	0	0	0	0	0	0	0
Durban Adaptation Charter	0	0	0	0	0	0	0	0
Mexico City Pact[272]	0	0	0	1 (1.7%)	0	0	0	0
Copenhagen City Climate Catalogue	2 (100%)	1 (33.3%)	2 (5.1%)	6 (10%)	6 (3.3%)	4 (13.3%)	0	0
carbon*n* Cities Climate Registry[273]	0	0	0	1 (1.7%)	0	0	0	0
Mayors Agreement	2 (100%)	1 (33.3%)	2 (5.1%)	8 (13.3%)	6 (3.3%)	3 (10%)	0	0
Urban Sustainability Directors Network	1 (50%)	0	0	0	0	0	0	0
EPA Region 5 Community Climate Change Initiative Partner	1 (50%)	0	0	4 (6.7%)	1 (0.5%)	0	0	0
GreenStep Cities	1 (50%)	0	0	13 (21.7%)	11 (6%)	2 (6.7%)	0	0
Municipalities with MN Energy Challenge Participants	2 (100%)	3 (100%)	14 (35.9%)	55 (91.7%)	75 (40.8%)	22 (73.3%)	0	1 (33.3%)

[271] Osofsky, *Appendix: Patterns of Network Participation in Major Metropolitan Areas*, *supra* note 158. Unless otherwise cited within the Table, all information can be found in the Appendix on file with the Utah Law Review, *archived at* http://perma.cc/L2PG-VSTU.

[272] *See* The Mex. City Pact, *Signatories*, *supra* note 184.

[273] *See* carbon*n* Climate Registry, *City Search*, *supra* note 185.

V. CONCLUSIONS: STRATEGIES FOR STRENGTHENING THE ROLE OF MULTILEVEL URBAN NETWORKS

A comparative assessment of climate change network participation by city type in these six metro regions indicates different patterns in each place. While center cities tended to be the most active in each metro region, suburban participation was inconsistent. In particular, metro regions varied in the overall level of participation by suburbs, the types of suburbs participating most actively, and whether cities were more active in smaller-scale or larger-scale networks.[274] This variation suggests the need for metro-regional-based analysis and approaches to increasing network participation.

This Part provides strategies for using the principles from Part II and the network and participation data from Parts III and IV to enhance the effectiveness of the multilevel climate networks. It focuses in particular on how this data could assist further development of two strategies introduced in *Suburban Climate Change Efforts*: (1) creating differentiated toolkits and models and (2) multiscalar network collaboration and coordination.[275] In its analysis, this Part maps next steps for implementation and research.

A. Creating Differentiated Toolkits and Models

In *Suburban Climate Change Efforts*, I argued that the divergent needs and opportunities in different city types made it critical to create more differentiated models and toolkits.[276] In particular, stressed inner suburbs are expanding less and have more urban redevelopment needs. Affluent job centers have the capacity to take actions similar to central cities. Outer-ring developing job centers and bedroom communities tend to be less connected to climate networks and free resources, but they have the most opportunities for growth-related land use planning.[277]

Like the networks I examined in my initial study of the Twin Cities region, however, none of the networks at any level in this broader study appear to be differentiating their toolkits or models in this way.[278] At most, they distinguish by city size or substantively. For example, USDN has a smaller-cities group, and the Mayor's Agreement awards and best-practices models differentiate between large and small cities.[279] Similarly, a number of the networks have specific subgroups

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[274] *See supra* Part III.

[275] *See* Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 452–57.

[276] *See id.*

[277] *See id.*

[278] *See supra* Part II.

[279] *Mayors and Climate Protection Best Practices*, MAYORS CLIMATE PROTECTION CENTER (June 2009), http://www.usmayors.org/pressreleases/uploads/ClimateBestPractices061209.pdf, *archived at* http://perma.cc/VLY6-RU3A; Urban Sustainability Directors Network, *About USDN*, *supra* note 93.

focused on issues relevant to some of their members, such as the USDN Western adaptation group.[280]

The participation data for the six metropolitan regions suggest that greater differentiation by city type in networks' toolkits and examples could be implemented on a metro-regional basis. For most of the networks examined, there was at least one city participating from most types of cities in these six metropolitan regions. This pattern indicates the possibility for focused metro-regional approaches that include exemplar cities in each of the regions providing geographically specific models for other cities of their type. If one groups the suburbs into broader categories of stressed inner suburbs (including segregated and older at-risk suburbs), developed job centers (including affluent and very affluent job centers), and developing communities (including low-density at risk suburbs and bedroom developing suburbs) for an initial set of models, exemplar cities are even easier to establish on a metro-regional basis.[281]

Network staff and local officials interviewed concur that this type of differentiation could be valuable.[282] I plan to collaborate with networks and local officials, beginning in the Twin Cities metro region, to develop such differentiated toolkits and exemplars and assist in implementing them. My hope is that creating such exemplar cities for six major geographically diverse urban areas can help to serve as a model for additional metro regions to take similar steps nationally.

B. Multiscalar Network Collaboration and Coordination

This broader study also reinforces the need for greater collaboration and coordination among networks. Like in the Twin Cities example introduced in *Suburban Climate Change Efforts*,[283] the many networks examined in Part III have substantial overlap in their functions but appear to have limited direct coordination. For example, the models, toolkits, and recognition provided by numerous networks at different levels address many similar steps that cities could take, but framed in various ways. This variation means that a city participating in more than one network would need to spend time reframing similar actions multiple times. If networks collaborated to create more consistency in what they ask of cities, they might increase their individual impact and the ability to measure across networks their impact on what their members are doing.[284]

This strategy has its limits, and full consistency is likely not possible or even desirable. Some networks have a broader focus on sustainability, which may be important for political reasons, whereas others have focused climate change goals. However, there are enough similarities across networks that some greater

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[280] Urban Sustainability Directors Network, *About Us*, *supra* note 92.

[281] *See supra* Part III.

[282] Osofsky, Confidential Meeting with Local Leaders, *supra* note 58.

[283] Osofsky, *Suburban Climate Change Efforts*, *supra* note 7, at 411–40.

[284] *See supra* Part II.

consistency seems both possible and desirable.[285] Moreover, the networks often have informal linkages that could be formalized. For instance, local officials in an urban area not included in this study have described how a center city joining the Mayor's Agreement asked the regional planning entity for assistance with its required greenhouse gas inventory.[286] The regional planning entity then asked the county for access to its ICLEI models, and in the process, agreed to do an inventory for the county and the smaller urban entities within that metro region's equivalent of suburbs.[287] I plan to work with networks to understand better where consistency could be achieved and how to build on such existing informal synergies.

Beyond consistency questions, the differentiation by scale of network penetration across the six metropolitan regions provides an opportunity for analysis and action. Specifically, further research is needed regarding why local and state networks seem to get better participation in some metro regions, while national and international networks do in others. It would be helpful to know if those differentiated choices are conscious and economic/political or instead reflect patterns of exposure and networking among cities in the region. As part of interviews on this question, I also plan to explore when and how networks spur or support action that would not otherwise have happened in participating cities.

An important question for this qualitative research is the extent to which the cost of joining a network influences participation rates. Networks in this study vary significantly in whether and how much they charge member cities. For example, at an international level, while both ICLEI and UCLG charge their members sliding scale fees based on population, the World Mayors Council on Climate Change is free.[288] Some local government representatives have described the cost of ICLEI as prohibitive, but its modeling tools as very useful;[289] as a consequence, within a metro region, governmental entities have sometimes shared resources from networks of which one of the entities is a member.[290] At a national level, both the Mayors Agreement and USDN charge dues.[291] However, at regional, state, and metro-

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[285] *See id.*

[286] Osofsky, Confidential Meeting with Local Leaders, *supra* note 58.

[287] *Id.*

[288] Global Network of Cities, Local & Reg'l Gov'ts, *Join UCLG*, UCLG, http://www.uclg.org/en/join-uclg, *archived at* http://perma.cc/5USG-DUY2 (last visited Sept. 11, 2014); Int'l Council for Local Envtl. Initiatives USA, *Membership Dues*, ICLEI USA, http://www.icleiusa.org/join/process-of-joining/iclei-usa-membersip-dues, *archived at* http://perma.cc/5N4N-DX9H (last visited Sept. 11, 2014); World Mayors Council on Climate Change, *Registration Form*, http://www.worldmayorscouncil.org/join/registration-form.html, *archived at* http://perma.cc/V6B5-RAD8 (last visited Sept. 11, 2014).

[289] Osofsky, Confidential Meeting with Local Leaders, *supra* note 58.

[290] *Id.*

[291] Urban Sustainability Dirs. Network, *Join USDN*, USDN, http://usdn.org/public/Join.html, *archived at* http://perma.cc/EY8G-FP7M (last visited Sept. 11, 2014); U.S. Conference of Mayors, *Dues for the U.S. Conference of Mayors*, U.S.

regional levels, there is more variation that may affect participation decisions. For instance, the Chicago and Denver state and metro-regional networks charge for membership, but the Atlanta, New York, San Francisco, Twin Cities, and regional EPA ones are free.[292]

In addition, I plan to consider in this further research how localities' political affiliations influence their network participation. In the Twin Cities, both Democratic- and Republican-leaning communities were joining climate change networks, even ones with explicit climate focus like the Mayors Agreement, though participation in the sustainability-focused statewide Greenstep Cities program was more bipartisan than in the Mayors Agreement. This initial data is a hopeful sign that progress may be possible across party lines in a local context, but it would be helpful to understand both bipartisan participation patterns across metro regions and, through interviews, the extent to which local leaders are influenced by polarized national politics in their network participation and climate action.[293]

In places where political and economic barriers are not insurmountable, the underrepresented networks might make some targeted efforts to increase participation. In others, the networks that are more politically palatable might redouble their efforts to involve more cities, using the many participants as models. Finally, to the extent that participation divergence is likely to continue in some metro regions, those networks with greater penetration or ability to penetrate might collaborate with those facing more barriers to maximize their impact.[294]

CONFERENCE OF MAYORS, http://www.usmayors.org/about/dues.asp, *archived at* http://perma.cc/6QQK-6FK8 (last visited Sept. 11, 2014).

[292] Chi. Wilderness, *Chicago Wilderness Member Application*, https://docs.google.com/file/d/0B6P8pYIRd5wIYmNTOEZYeHFrNkU/edit, *archived at* http://perma.cc/N2YF-7DMP (last visited Sept. 11, 2014); Colo. Climate Network, *About the Colorado Climate Network*, http://www.coclimatenetwork.org/about/index.html, *archived at* http://perma.cc/3987-Z938 (last visited Sept. 11, 2014); Atlanta Reg'l Comm'n, *Certified Green Communities Program*, http://www.atlantaregional.com/environment/green-communities, *archived at* http://perma.cc/LP2M-JU3Y (last visited Oct. 20, 2014) (providing no indication of cost); Inst. for Local Gov't, *About ILG*, *supra* note 143; Minn. Pollution Control Agency, *Minnesota GreenStep Cities*, *supra* note 149; MN Energy Challenge, *About the Challenge*, *supra* note 153; N.Y. Dep't of Envtl. Conservation, *Adopt the Climate Smart Communities Pledge*, *supra* note 142.

[293] For a discussion of these patterns and the ways in which nonpartisan elections and other factors, such as community connection, might make the local context less partisan, see Hari M. Osofsky & Jacqueline Peel, *Energy Partisanship*, 65 EMORY L.J. (forthcoming Jan. 2016) (manuscript at 48) (on file with Utah Law Review) (citing NAT'L LEAGUE OF CITIES, *Partisan vs. Nonpartisan Elections***,** http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-officials/partisan-vs-nonpartisan-elections, *archived at* http://perma.cc/JN65-XZPM (last visited Feb. 28, 2015)); Brian F. Schaffner, et al., *Teams Without Uniforms: The Nonpartisan Ballot in State and Local Elections*, 54 POL. RES. Q. 7 (2001); Douglas D. Perkins & D. Adam Long, *Neighborhood Sense of Community and Social Capital: A Multi-Level Analysis*, *in* PSYCHOLOGICAL SENSE OF COMMUNITY: RESEARCH, APPLICATIONS, AND IMPLICATIONS 291 (Adrian T. Fisher et al. eds., 2002)).

[294] *See supra* Part III.

Overall, the new data presented in this Article provides important information on how network participation varies across metro regions and where gaps are most pronounced. While analyzing participation in networks is only one component of fostering urban climate change, understanding these patterns can help to inform strategies and further research projects. Given both the high level of urbanization and the low level of overall participation, especially in the suburbs, rethinking the geography of urban climate action in this way is critical.