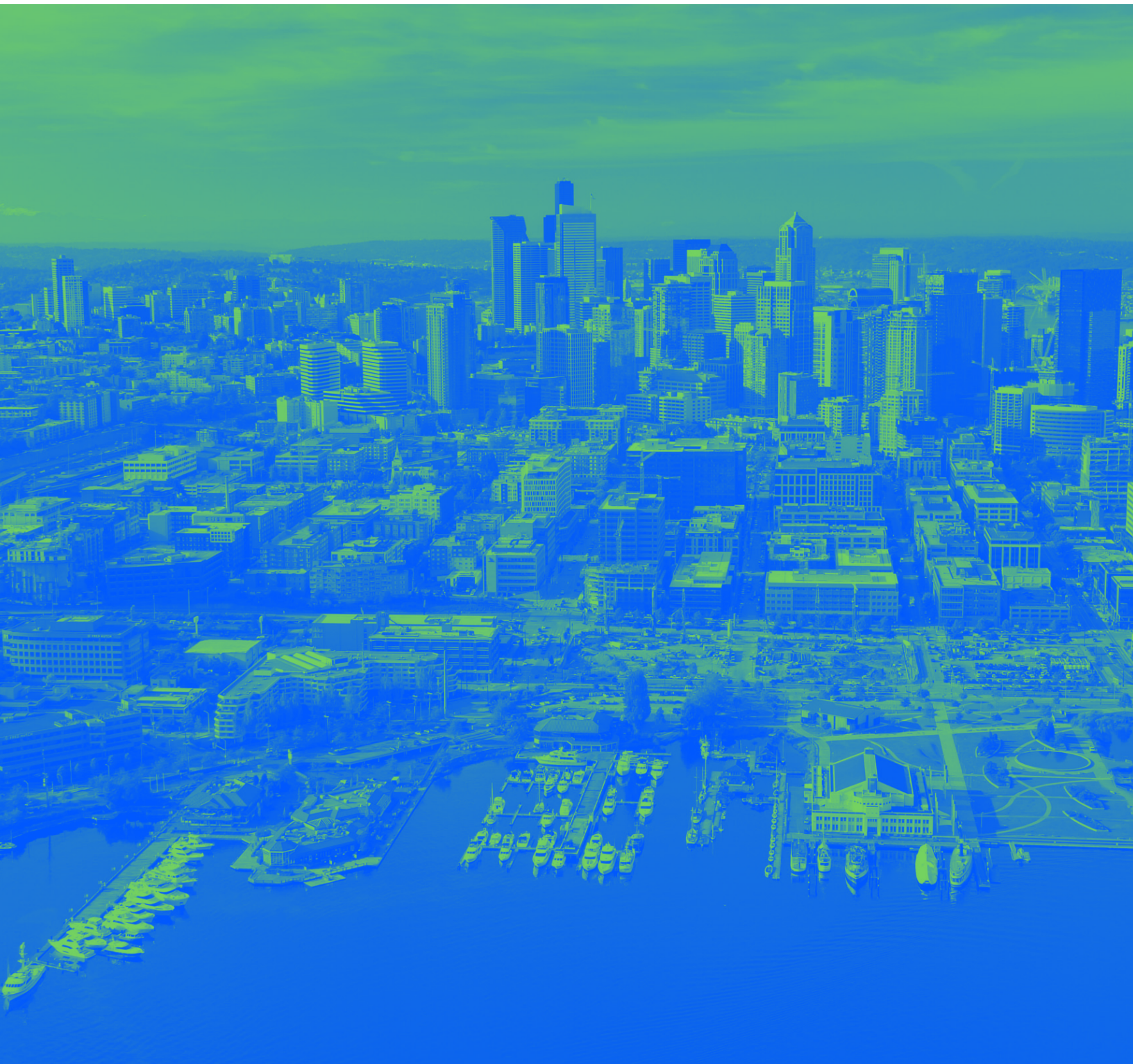# Catalytic development: (Re)creating walkable urban places

Christopher B. Leinberger and Tracy Hadden Loh
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About the authors

Christopher B. Leinberger is a land use strategist, teacher, developer, researcher, and author, balancing business realities with social and environmental concerns. Mr. Leinberger is the Charles Bendit Distinguished Scholar and Research Professor and Chair of the Center for Real Estate and Urban Analysis at the George Washington University School of Business. He has been affiliated with The Brookings Institution since 2005 as a Visiting Fellow and as a Nonresident Senior Fellow.

Tracy Hadden Loh is a data scientist at the Center for Real Estate and Urban Analysis at the George Washington University School of Business. Dr. Loh's research explores the idea of metropolitan areas as emergent systems, and applies data mining, simulation, statistical modeling, and geographic analysis to topics such as commercial real estate, stormwater management, and bicycle facility network planning. Her PhD in city and regional planning is from the University of North Carolina at Chapel Hill.

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Executive Summary

Since the mid-1990s, demographic and economic shifts have fundamentally changed markets and locations for real estate development. These changes are largely powered by growth of the knowledge economy, which, since the turn of the 21st century, has begun moving out of suburban office parks and into more walkable mixed-use places in an effort to attract and retain highly educated young workers and support creative collaboration among them.

This paper takes an in-depth look at six case studies to describe the process of catalytic development, a new model of investment that over the past decade has had remarkable success in creating such walkable communities. Catalytic development focuses on areas abandoned as a result of deindustrialization and auto-oriented development, in some cases recycling the very properties cleared or left vacant by mid-20th century urban "renewal" programs. Catalytic development incorporates many urban design best practices—granularity, incrementalism, and mixing of uses, scales, and people—and can address difficult urban challenges while delivering long-term economic returns to both the public and private sectors.

The catalytic development model
Walkable urban development has historically been the dominant approach to city-building. This changed in the early to mid-20th century, when drivable suburbs emerged as a new form of development made possible by the introduction of low-cost automobile transport, and then supported by market preferences, government subsidies, zoning regulations, and a financing formula that became well-understood and accepted in cities throughout the world.

Catalytic development represents a counterweight to these forces—a place-based response to changing demands that facilitates large-scale investment in concentrated, walkable urban areas. It has three defining features that set it apart from traditional real estate development:

- **Patient equity**—Financial equity that has expectations of returns over the long term, generally beyond year five of the investment and longer.
- **Integrated development**—The assemblage of and investment in proximate land parcels that together reshape the area and help spur additional growth, as well as the combining of conventionally separate real estate roles in single companies.

Catalytic development begins with office employment, and benefits from a proactive affordable housing strategy.

Six case studies of catalytic development:

Detroit, Mich.: A major intervention from the philanthropic and private sector and a commitment to placemaking have turned around the most depressed major downtown in the country.

Chattanooga, Tenn.: Close collaboration between the philanthropic, public, private, and nonprofit sectors helped turn a dull, empty urban core into a vibrant residential, cultural, and employment hub.

Cincinnati, Ohio: A private-public partnership led by the corporate community redeveloped Over-the-Rhine, a downtown adjacent historic neighborhood disrupted decades ago by urban renewal.

Seattle, Wash.: A private development group redeveloped South Lake Union, an underused industrial area, into a vibrant innovation district, concentrating new infrastructure, jobs, and housing in the area.

Cambridge, Mass.: MIT partnered with a private master developer on a 25-year infill effort that converted abandoned factories to mixed-income housing, a hotel, biotech labs and offices, and retail establishments.

Phoenix, Ariz.: The unique city-state investment brought a rapidly growing Arizona State University to downtown Phoenix, leveraging a new light rail transit line and bringing new life to the area.

South Lake Union
Seattle

University Park
Cambridge

Downtown
Detroit

ASU Downtown
Phoenix

Over-the-Rhine
Cincinnati

Downtown
Chattanooga

- **Employment first**—Either substantial employment growth early in the redevelopment process or an existing central employment base with significant entry-level opportunity.

This report highlights six examples where private, university, or non-profit developers have employed the catalytic development model to reinvigorate walkable urban communities.

These case studies reveal important lessons for real estate developers, investors, anchor institutions, corporations, philanthropists, local government leaders and staff, and urbanists seeking to create economically productive and socially inclusive walkable urban places in their own cities, including:

- All of the case studies identified some kind of crisis as the context for catalytic development. In the most extreme cases, the downtown or other potential walkable urban place had hit rock bottom from a market perspective, but had economic, physical, cultural, or other assets on which to build.
- Catalytic development tends to be led by a proven leader who brings credibility from a combination of vision, track record, and access to patient capital. But

developers must find a balance between their need for agility and control, and the need to engage the broader community in an inclusive process that builds trust and achieves equitable outcomes.

- Even when guided by a master plan, catalytic developments are multi-phase endeavors that come together one building at a time, adapting and responding to unexpected opportunities and challenges as they arise. Catalytic developers set the stage for their own long-term success with a flexible, incremental strategy, rather than a megaproject. Strong place management is vital to this process.

- Catalytic developers have a commitment to quality development, though achieving it can be difficult. Across the board, the case study participants emphasized a desire to "go above and beyond what the code requires," develop "great open space … maintained very, very well," and "design great buildings that are dictated not just by cost per square foot but also the long term aspirations for the institution and community."

- A diversity of ideas, efforts, and shared risk is essential to the sustained growth of a catalytic development, demanding that developers actively encourage the ongoing engagement of other stakeholders in the community.

Catalytic development is not available or appropriate for all redevelopment situations. However, the explosion of private wealth of the last generation—one driver of income inequity—can also be used to turn brownfields, failing business parks, and center city and suburban town centers into thriving and vital walkable urban places. Catalytic development is not only about fostering rapid economic growth, but if done right, has the potential to create socially equitable, environmentally sustainable, and healthier places to live and work.

I. Introduction

A wave of new investment is reshaping urban real estate markets across the United States. Spurred by corporations, wealthy investors, philanthropies, and anchor institutions, "catalytic development" is a new approach to redeveloping formerly dis-invested areas. Taking advantage of pent-up demand for walkable urban places, catalytic developers make large-scale investments in downtowns, neighborhoods of key institutions, and suburban town centers to generate physical and economic revitalization and, with it, long-term returns for the communities and themselves. In this paper, we investigate six case studies and synthesize for real estate developers, investors, anchor institutions, corporations, philanthropists, local government leaders and staff, and urbanists a set of best practices for creating economically productive and socially inclusive walkable urban places.

This new model has been years in the making. Following the generally disastrous federal government urban renewal programs of the 1950s through 1980s, the 1990s witnessed the unexpected market-based redevelopment of formerly forlorn downtowns in many metropolitan areas throughout the country.[1] The 2005 Brookings Institution research brief, "Turning Around Downtown: Twelve Steps to Revitalization," summarized lessons learned from that early phase of the center city revitalization movement and presented a template for "walkable urbanism" to revitalize downtowns.[2] Much has been learned in the

One co-author, Christopher B. Leinberger, has spent the past 40 years studying, consulting and building walkable urban places as the former owner and manager of one of the largest real estate advisory firms in the country, a co-founder of the Arcadia Land Company, and the co-founder of the Transit-Oriented Development Council of the Urban Land Institute. As a consultant and Brookings Institution fellow, Leinberger has worked in two of the six case studies in this research: downtown Detroit and Chattanooga.

intervening decade. Catalytic development is a fundamentally new model of developing walkable urban places that over the past decade has had remarkable success in creating vital communities. This success has been demonstrated from both an economic perspective (increased real estate valuations and economic and fiscal growth) and from preliminary social equity analyses.[3] Catalytic development represents a departure from previous forms of "public-private" urban redevelopment efforts of the mid- to late 20th century in that it generally flips this arrangement: In these types of developments, the private sector has generally, though not always, been the motivating force and primary source of financing and job creation.[4]

The catalytic development model stands in stark contrast to the mid- to late 20th century urban renewal period and the "cataclysmic" development Jane Jacobs condemned in her seminal 1961 work, "Death and Life of Great American Cities." Jacobs described a process by which "cataclysmic money pours into an area in concentrated form, producing drastic changes" that destroy existing complexity and diversity, usually after a period of credit withholding by capital institutions. She wrote the book in an era of federally subsidized megaprojects and observed that "[p]roject building as a form of city transformation makes no more sense financially than it does socially."

The former Riverfront Parkway in Chattanooga, constructed during the urban renewal era, was a four-lane limited access highway with a 55 MPH speed limit. Photo Credit: Courtesy of River City Company

Today's catalytic development, on the other hand, focuses on areas abandoned by the spatial economic shifts of deindustrialization and auto-oriented, or drivable, sub-urban development, in some cases recycling the very properties cleared or left vacant by urban "renewal." Catalytic development incorporates many of the best urban design practices identified by Jacobs—including granularity, incrementalism, walkability, and mixing of uses, scales, and people— and can offer solutions to difficult urban problems while delivering long-term economic returns to both the public and private sectors. It represents an opportunity to "do well while doing good." However, it can also concentrate power in the hands of a relatively small group of actors, creating the potential for a lack of accountability and public backlash.

Catalytic development represents an opportunity to "do well while doing good."

This paper documents what is new about this emerging model of development by examining the catalytic development case studies in six U.S. cities: Cambridge, Chattanooga, Cincinnati, Detroit, Phoenix, and Seattle. The first section, "Two Periods of Urban Development," places metropolitan development in the context of recent urban economic trends to help the reader understand why catalytic development is emerging at this particular moment in time. From there, the paper defines catalytic development and distinguishes it as a unique model of urban development with definitional requirements that are central to its viability. The subsequent section presents six case studies of catalytic development, which draw on interviews and secondary quantitative analysis from the American Community Survey and CoStar, a commercial real estate database.[5] We then distill these case studies to a set of 12 lessons for pursuing catalytic development, including successful strategies and common pitfalls. The paper ends with a summary of the model's key requirements, and the potential and hazards involved in pursuing it.

II. Two periods of urban development

1946–1995: Drivable sub-urbanization and the commodification of real estate

There are two urban forms used in building metropolitan areas: "walkable urban" and "drivable sub-urban."[6] As described in "The Option of Urbanism," walkable urban development is higher density (using floor area ratio (FAR) as a measure of density, it is 1.0 to 40 FAR) while drivable sub-urban development is substantially lower density (FAR between 0.05 to 0.4).[7] Walkable urban was the development approach used for thousands of years of city building when walking was the only way the vast majority of a city's population could get around. Drivable sub-urban was an entirely new form of development that was made possible by the introduction of low-cost automobile and truck transport in the early-to mid-20th century, first in the United States, but then rapidly adopted around the globe. In the post-WWII era drivable sub-urban form first appeared at the urban fringe, overlapping the geographic suburbs, but today the form can be found in both city centers and outer areas (and as metropolitan regions become more polycentric, the inverse is a growing trend for walkable urban form). During the late 20th century, drivable sub-urban development evolved so as to be easily regulated through common zoning regulations and easily developed throughout the world as its financing formula became well-understood and accepted.

In the late 20th century, these formulas allowed for the "commodification" and "financialization" of real estate by global financial players, including investment and commercial banks, stock exchanges, pension funds, and government regulators. These new
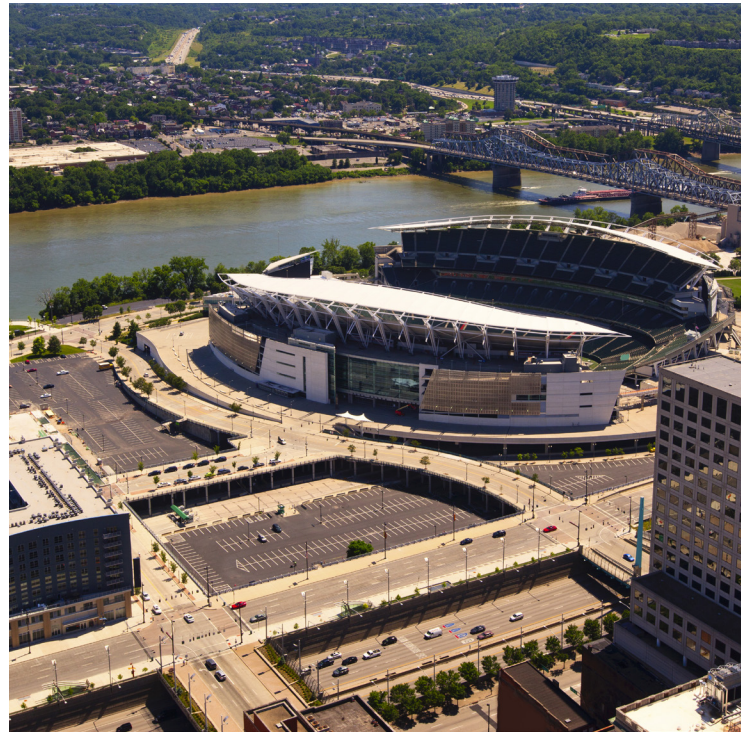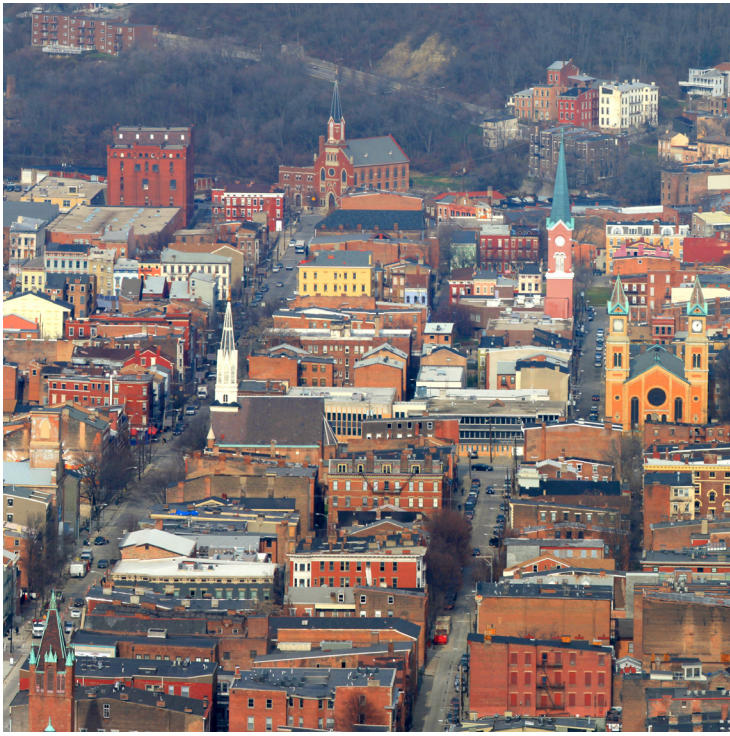
Walkable urban and drivable sub-urban form in downtown Cincinnati.
Photo Credit: SNEHIT/Shutterstock.com (left), aceshot1/Shutterstock.com (right)

sources of equity and debt were rapidly adopted by real estate developers in search of new financial resources. By the 1990s, real estate became the fourth asset class in the economy—joining cash, stocks, and bonds—to be managed by Wall Street. The real estate asset class now includes vehicles such as real estate investment trusts (REITs), residential and commercial mortgage-backed securities, and expansion in market share of publicly traded homebuilding companies.

Such conventionally and conservatively underwritten financing is predicated upon short-term equity returns (3 to 5 years) from well-understood, "like for like" commoditized products. Indeed, the commodification of real estate influences virtually all privately funded real estate development. In practice, this takes the form of what has been called the "19 standard real estate product types," which defined the publicly traded real estate asset class at the end of the 20th century—and helped create drivable sub-urban locations around the world that look just like one another.[8] In the case of the "neighborhood center," commonly referred to as a strip mall, each must have national-credit grocery and drug store anchors, located on land that is between 12 to 15 acres (or 5 to 6 hectares) in size on a busy arterial highway on the going-home side of the road (minimum

25,000 daily car count). Surface parking lots occupy 80 percent of the land, and one-story buildings occupy the remaining 20 percent, set back at the rear of the property. This formula applies to strip malls whether in metropolitan New York City, Cleveland, Los Angeles, or Paris. Similar commodification formulas apply to the other real estate product types, such as business park offices, warehouses, hotels, for-sale housing, or rental apartments.

As these trends came to dominate real estate development, once ubiquitous walkable urban places, also buffeted by other significant centrifugal forces, suffered substantial flight of population, business, and capital, leaving the downtowns of many cities and suburban towns hollowed out, destitute, and desperate for reinvestment.

1995–Present: Back to the future of walkable urbanism

Since the mid-1990s, demographic and economic shifts have been fundamentally changing the market and location for real estate development.

Changing lifestyle preferences among empty-nester adults and young people are altering demand. The majority of new households being formed today, as well as those projected over the next 20 years, are comprised of singles or couples with no school age children—target households for walkable urbanism.[10] At one end of the spectrum, the retiring baby boom generation and other empty nesters have expressed increased demand for an active walkable urban lifestyle with cultural amenities and lower house maintenance responsibilities.[11] At the same time, younger generations have reduced demand for drivable sub-urban housing compared to previous generations due to rising costs of living (especially car-based transportation), delayed family formation, increased student debt, rising economic inequality, and other factors.[12] As these millennials age and enter homeownership, they bring with them growing desire for walkable urbanism that can meet the needs of young families, and a greater share are purchasing homes in walkable urban areas

U.S. employment, percent share by industry
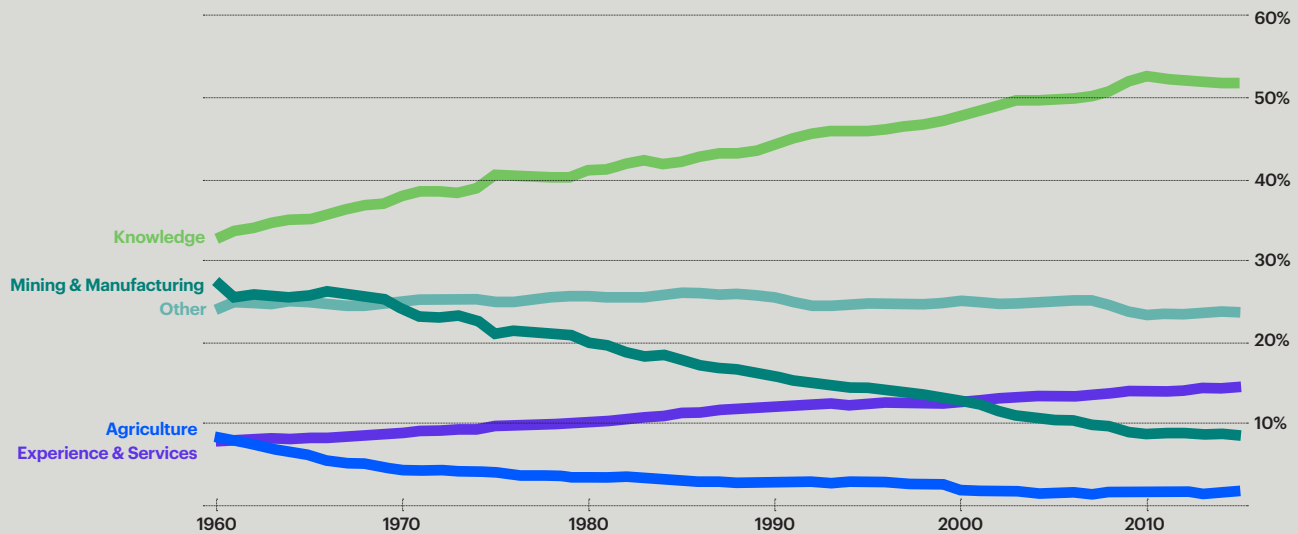
Sources: U.S. Bureau of Labor Statistics Current Employment Statistics and World Bank International Labor Organization, Key Indicators of the Labor Market database

than any other generation. Even in the suburbs, millennials are more likely than other generations to choose a community with shared amenities.[13]

The economic shifts changing real estate development involve the layering of the knowledge economy on top of the previous historic drivers, agriculture and manufacturing. Since the turn of the 21st century, the knowledge economy has been shifting out of sub-urban office parks and into more walkable urban and mixed-use places in an effort to attract and retain highly educated young workers who value walkable urbanism in their living and work arrangements— and to support creative collaboration among them.[14] Indeed, the 2017 Amazon HQ2 request for proposals is a distillation of the locational features demanded by knowledge firms: an educated young workforce, transit and bike served locations, excellent universities, urban lifestyle, international airline connections, and a business climate conducive to economic growth, among other considerations.[15] However, even older corporations, founded in the industrial age, are moving to walkable urban places that attract the required educated workforce, especially millennials, and that brand the company as an innovative, 21st century knowledge enterprise. The move of the headquarters of General Electric from a suburban

Connecticut office park to downtown Boston and the headquarters of Marriott from a suburban Washington business park to downtown Bethesda, Md. are just two of hundreds of examples in the current real estate cycle, which began in 2010, that demonstrate this national trend. Behind the planned move of the quintessential suburban corporation, McDonalds, to downtown Chicago is the desire to be "closer to customers, encouraging innovation, and ensuring great talent" according to the CEO.[16]

Trends in the knowledge economy (which includes technical, artistic, and professional jobs) are increasingly the dominant economic force in the United States, as shown in Figure 1 on page 14. Knowledge workers make up 52.6 percent of total U.S. employment and contribute over 59 percent of economic output.[17] By contrast, manufacturing and mining dropped from 28 percent of employment in 1960 to 9 percent in 2015, while agricultural employment

What is a WalkUp?

WalkUPs are dense regionally significant mixed-use places with multiple transport access modes (cars, transit, bikes, walking, etc.) and containing significant amenities within walking distance. A typical WalkUP is between 200 and 500 acres (0.3 to 0.75 sq. mi.) and is a focus of the wealth creation of the metropolitan economy.

   The demand for new WalkUPs is split between the center city (generally the first five types of WalkUPs) and suburban locations. Possibly half or more of the demand for walkable urban development will probably be generated in the urbanizing suburbs.

 The eight types of WalkUPs include:

Downtown: The traditional center of the major city of the metropolitan area. In the largest metropolitan areas or twin city metropolitan areas, there may be two downtowns (e.g., Lower and Midtown Manhattan in New York City and downtown Dallas and Ft. Worth).

Downtown adjacent: WalkUPs that cluster around the central city downtown, encircling the downtown with multiple downtown adjacent WalkUPs.

Urban commercial: Former local-serving commercial districts that economically declined during the late 20th century, recently revitalized as regionally significant WalkUPs.

Urban university: WalkUPs based upon higher education institutions that are anchored to a place, many times including cultural and sports facilities, hospitals, urban entertainment, faculty, staff and student housing and employment desiring to be close to the academy.

Innovation district: Places where the knowledge-based innovation economy is focused (research, tech-transfer, startups, corporate facilities, etc.), many times growing out of an urban university WalkUP.

Suburban town center: 18th and 19th-century towns eventually swallowed by larger metro areas, and which stagnated in the late 20th century, have been revived into WalkUPs based upon the legacy pedestrian-oriented street grid and historic buildings.

Redeveloped drivable sub-urban: Drivable sub-urban business parks and/or regional malls that have since urbanized into WalkUPs.

Green/brown field: WalkUPs developed on undeveloped green field land or reclaimed brown field locations.

decreased from 9 percent to under 2 percent. The probable next emerging economy seems to be reinforcing this structural and spatial shift toward walkable urbanism.[18] Dubbed the experience economy, it seeks to add economic value from experiences and social interaction rather than from physical or knowledge products and includes tourism, enhanced retail services, and shared services/products (car/bike sharing, co-working, maker spaces, and house sharing). The experience economy generally demands walkable urban places for their locations, which allow them to leverage a city's unique history to build a brand around that identity.[19] For example, a substantial amount of tourism, one of the five largest industries in the world, clusters in the walkable urban sections of diverse global centers ranging from Paris to Manhattan to Santa Fe, N.M.—not in auto-oriented sub-urban locations.

The location of these regionally significant walkable urban places, which we call "WalkUPs" for ease of reference, are in both the central cities and the suburbs of U.S. metropolitan areas. There are eight basic types of WalkUPs identified to date (see text box on pg 15) that according to George Washington University research only occupy about 1 percent of the total metro area land mass. In metro New York City, which is the most walkable urban metro area in the country, the land occupied by WalkUPs, which includes most of Manhattan Island, is only 0.5 percent of the metropolitan land mass.[20] Even when walkable urban bedroom neighborhoods are added to the regionally significant places, there tends to be less than 5 percent of the metropolitan land use classified as higher density, walkable urban.

Looking beyond New York, there have been leaders and laggards in the stewardship and growth of walkable urbanism in the United States. "Foot Traffic Ahead 2016" examined the 30 largest metropolitan areas (which represent 46 percent of the country's population and 54 percent of the country's economic output), finding that all 30 are experiencing walkable urban market share increases and rental premiums for office, retail and rental apartments, with subsequent declines in drivable sub-urban occupancy and rental rates.[21] The vast majority of these metro areas are experiencing over two times market share growth for walkable urbanism. The last time these regions saw a comparable shift was in the 1980s, when trends were going in the opposite direction

toward drivable sub-urban locations. At the same time, rents for walkable urban office, retail, and rental apartments are on average 74 percent higher on a rent per square foot basis than drivable sub-urban real estate. These rental premiums have increased continuously since the start of the economic recovery in 2010 and have not yet leveled out, indicating increasing pent-up demand.[22]

In short, after decades of disinvestment, suburbanization, and deindustrialization, walkable urban development patterns are once again the preferred location of the economic and demographic future of the country. What is old is new again.

III. What is catalytic development?

The global economic crisis of 2007–2009 drew significant attention to the consequences and risks of financialization and commodification of drivable sub-urban real estate, which increasingly relied on Wall Street for money.[23] Regulators and scholars have identified a need to better understand how these factors have changed the mechanisms of development, affected the built environment and social fabric, and altered institutions of urban governance in terms of the actors involved in revitalization and the organizational forms through which urban planning and governance take place.[24,25]

Catalytic development represents a place-based reaction to the financial commodification of real estate.[26,27] It is "entrepreneurial urbanism" to facilitate large-scale investment in walkable urban development and place-making strategies to generate long-term returns.[28,29,30,31]

Six case studies of catalytic development:

Detroit, Mich.: A major intervention from the philanthropic and private sector and a commitment to placemaking have turned around the most depressed major downtown in the country.

Chattanooga, Tenn.: Close collaboration between the philanthropic, public, private, and nonprofit sectors helped turn a dull, empty urban core into a vibrant residential, cultural, and employment hub.

Cincinnati, Ohio: A private-public partnership led by the corporate community redeveloped Over-the-Rhine, a downtown adjacent historic neighborhood disrupted decades ago by urban renewal.

Seattle, Wash.: A private development group redeveloped South Lake Union, an underused industrial area, into a vibrant innovation district, concentrating new infrastructure, jobs, and housing in the area.

Cambridge, Mass.: MIT partnered with a private master developer on a 25-year infill effort that converted abandoned factories to mixed-income housing, a hotel, biotech labs and offices, and retail establishments.

Phoenix, Ariz.: A unique city-state investment brought a rapidly growing Arizona State University to downtown Phoenix, leveraging a new light rail transit line and bringing new life to the area.

We define catalytic development as place-based investing in a concentrated, walkable urban area (GWU metropolitan level research reveals most WalkUPs are about 200–500 acres, or 0.3 to 0.75 square miles, in size).[32] There are three key elements of catalytic development:

1. Patient Equity

Catalytic development requires financial equity that has expectations of returns over the long term, generally beyond year five of the investment and longer.[33,34] Conventional equity, by contrast, demands returns between 3 and 5 years. Walkable urban projects take more time because they are characterized by longer zoning and building permit entitlement processes, complex planning, public input, higher quality construction, and phased or incremental buildout. However, the inescapable requirement for patient equity is that catalytic development fundamentally changes a 200 to 500-acre place and will probably have to survive one or more recessions. Real estate is the most cyclical industry in the economy, typified by depressions (at least 20 percent reduction in economic output, or far worse) every 6 to 8 years. Formulaic drivable sub-urban stand-alone projects can be up and running in a matter of months or a year. Walkable urban placemaking is therefore far more complex and risky, even if it yields more resilient projects and places over the long haul.

The inescapable requirement for patient equity is that catalytic development will have to survive one or more recessions.

Patient equity can take the form of cash, credit enhancement (loan guarantees), land or buildings, and forgone fees (development, professional and other fees). Patient equity is investment capital looking for both long-term returns and achievement of a mission, the fundamental redevelopment of a place. The six case studies surfaced five possible sources:

(1) Private sector wealth—This is the most promising source of patient equity and has generally been from technology or other entrepreneurial fortunes of individuals looking to shift their investment from the virtual

world to the physical. Both the investment by Dan Gilbert of Quicken Loans in downtown Detroit and Vulcan Inc.'s Paul Allen, one of the co-founders of Microsoft, in Seattle demonstrate not only the desire to invest in physical improvements but to invest in their own community.

(2) Anchor institution endowment—Generally the province of private higher education institutions, this source of patient equity is due to demand from university and college faculty and students for walkable urbanism. At MIT, land, buildings, and equipment compose 13 percent of the MIT Investment Management Company's assets, a staggering value given MIT's $13 billion plus endowment (the sixth largest endowment in the United States).[35,36]

(3) Public funding—Arizona State University's proposed move to downtown Phoenix in 2006 to expand from its nearly built-out Tempe main campus was predicated on a $200 million taxpayer-supported bond that was passed via a ballot measure. It was similar to a grant for investment in not only university-related buildings but the infrastructure (a major urban park, street improvements, etc.)—it was patient equity that did not even have to be paid back. Naturally, "free" money is as patient as it gets.

(4) Philanthropy—Foundations that focus on a specific geography or metropolitan area have invested in catalytic development to turn around a downtown or some other walkable urban place. Survey research of the Funders Network for Smart Growth, "Foundations and Real Estate," reveals numerous examples.[38] The Lyndhurst Foundation in Chattanooga was the provider of the initial seed start-up and substantial equity investments in various projects undertaken by catalytic developer River City Company. Some seed capital took the forms of grants to pay for upfront community visioning and the strategic planning efforts for downtown Chattanooga. Foundation funding has also taken the form of "program-related investments" (PRIs), which are low-interest loans to development companies or specific projects in keeping with the foundation's mission. These PRIs are expected to be paid back, though at zero or extremely low interest rates.

Financial returns on patient equity

Every real estate project is financed by equity (cash, land, etc.) and debt (constriction loans, mortgages, etc.) as part of the "capital stack." Patient equity can be a contentious topic. It may be derided on Wall Street as "stupid equity" or viewed as mission-driven philanthropy. It is true that in many cases, depending on its place in the capital stack, patient equity may accept below-market returns in the short-term (0 to 5 years), for example as low as 0 to 3 percent. However, our case studies demonstrate that patient equity invested in walkable urban places can deliver strong (over 8 percent) sustained returns over the long-term (5 to 20 years and even longer), as articulated in the 2007 Brookings research brief "Back to the Future: The Need for Patient Equity in Real Estate Development Finance."[37]

Not all equity in the capital stack must be patient. There is no rule of thumb, much less any documented research, on how much patient equity should be in the stack. It is safe to estimate that at least 20 percent of the capital stack should be patient equity, which can include the contribution of land value, such as the case of Vulcan in Seattle's South Lake Union. Many times, one of the partners in the catalytic developer has long-term, low-basis or no-basis land that is their major contribution to the partnership.

There are also other forms of patient equity, such as the contribution of postponed development and other fees, pursuit costs (many times which are used to re-zone and therefore increase the contributed land value), and, of course, cash.

Many international sovereign wealth funds, wealthy families, and REITs invest 100 percent of the required cost of development as patient equity, a practice that has become more common in recent years as interest rates have remained low and investors seek opportunities in walkable urban assets that they intend to hold long-term. This trend in finance parallels the return of walkable urban development. The attractiveness of this real estate for equity is likely due in part to its resilient value and the further potential of an "upward spiral" of value creation.

In drivable sub-urban development, each new development reduces the very reasons the market was attracted to the project (ease of driving there, open space, lack of pollution, etc.), destabilizing value. Drivable sub-urban development results in "more is less" financial return. The opposite is true in walkable urban places. As more walkable urban development is delivered in a WalkUP, there are more people on the sidewalks, more retail options, increased values and property taxes. Rather than more is less, more is better. Adjacent development (even by another owner) increases the existing asset values by increasing the walkability of the place. There are few investments that can outperform walkable urban real estate. As neighboring properties are built, your asset values increase without doing anything, except engaging in ordinary property management. As a result, walkable urban real estate tends to be held long-term, rather than the "build and flip" nature of drivable sub-urban development.

Still, there may be the need for additional conventional equity layered on top of the patient equity. This could include mezzanine debt (viewed as equity by the debt providers) or equity that relies upon high internal rates of return (IRR). Both "mezz debt" and conventional equity need to be paid back as soon as possible, typically in 3 to 5 years, possibly using the bulk of any post-debt-service cash flow in the early years. The reliance on IRR as the sole measurement of real estate value creation blinds short-term investors, preventing them from seeing or harvesting the mid- to long-term cash flows and value creation of walkable urban development. Once the mezz debt or conventional equity is satisfied, the patient equity generally receives the bulk of the post-debt service cash flow and total ownership of the development.

It is the desire for long-term ownership, superior value creation, and the long-term cash flow of walkable urban real estate that has been the basis of most of the substantial real estate fortunes of the past centuries and the current group of long-term owners today. The dwindling of merchant builders in income real estate (those who build and flip in the short term), and the reduction of assets trading hands after a short-term hold (much to the chagrin of commercial brokers), shows that walkable urban real estate has become an asset class to hold for the long-term. Catalytic developers may be written off as mission-driven, "stupid equity" providers, but these case studies indicate they are savvy investors.

(5) Corporate Investment—The executives of major corporations located in a disinvested place may decide to invest corporate financial resources to improve the place so as to make it more attractive to current and prospective employees and executives. In the knowledge economy, as highlighted above, corporations are either relocating to WalkUPs or redeveloping their existing WalkUP to both (1) attract the educated millennial workforce and (2) brand the company as an innovative knowledge-based firm. The investment in downtown adjacent Cincinnati was led by the CEO of Proctor & Gamble, which has been headquartered in downtown Cincinnati for more than a century.

There are other potential sources of patient equity that were not employed by these six case studies. "Impact investing" is a recent source of patient equity made by charitable foundations with the intention to generate a measurable beneficial social or environmental impact alongside (or in lieu of) a financial return. There is also the potential of CDFI financing. Community development financial institutions (CDFIs) are private financial institutions that deliver affordable lending to help disadvantaged people and communities redevelop, as well as provide job training, counselling, etc.

Patient equity is hard to underwrite using conventional financial metrics, such as discounted cash flow analysis or internal rate of return. Conventional underwriting assumes that return of capital occurs in three to five years with a substantial annual return, generally in the 12 to 25 percent range. Yet long-term patient equity is essential for catalytic development to occur due to the long-term nature of walkable urban real estate investment, which reaches stabilized returns in five or more years but can generate cash flow for decades. This disconnect between short-term conventional underwriting and long-term walkable urban development is bridged by patient equity. Yet, as real estate investors of a century ago knew and private, generally family-owned enterprises or sovereign wealth funds know today, the real returns are in the mid- to long-term. Conventional underwriting cannot see those returns due to the limitations of its methodologies.

2. Integrated Development

Catalytic development also requires the assemblage of and investment in proximate land parcels. Our case studies range from just 27 to 60 acres, meaning they are only a section of a WalkUP area. This land needs to be contiguous or near-contiguous to leverage the walkability of the entire assemblage. It also requires a combination of real estate roles—from land speculation through place management and programming—in one organization.

Parcel assemblies (horizontal integration) mean that catalytic developers can manage their assets as a pool, rather than as individual projects, spreading risk, making strategic choices, and achieving efficiencies. As one real estate asset begins to perform, it helps the adjacent assets in the upward spiral of value creation. RJ Wolney, the vice president of finance for Bedrock, the Rock Ventures development company, speaks of their collection of downtown Detroit buildings as a "portfolio of assets" noting that, "If you have a bunch of singular developers … somebody may make a decision about a property that is disjointed from everything else that's around it, or it's driven by a need for capital. We have been able to be deliberate in design, activation, and tenancy, allowing us to execute thoughtfully, which sometimes means putting a pause or advancing an investment that returns qualitative value."

While developing University Park, Jim Ratner of Forest City emphasizes that, "Getting the parking right is a huge issue in a mixed-use project. We had to come up with a concept that was relatively new then of shared parking, that each use doesn't need its own dedicated parking [e.g. residential, office, retail]." The Cincinnati Center City Development Corporation (3CDC) has taken this concept even further, funding the redevelopment and programming of world-class public spaces at Fountain Square and Washington Park by renovating or constructing underground parking garages beneath the park space, creating a self-reinforcing cycle in which the parking and public spaces support residential and commercial development, and new development generates additional parking revenue and customers for income-generating and community-building events in the public spaces. The revenue generated returns in whole or part to

3CDC for debt service, maintenance, and reinvestment.

In addition, across our case studies, catalytic developers vertically integrate conventionally distinct real estate roles, such as land acquisition, building development and redevelopment, asset management, tenancy, and place management. In conventional real estate, these roles are traditionally played by separate companies, as they require very distinct expertise. Distinct real estate roles may also traditionally hold conflicting or competing needs and interests that promote separation. Catalytic development is characterized by vertical integration of these roles to achieve synergies, economies of scale, and an emphasis on quality over near-term profit maximization.

Washington Park in Cincinnati is on top of a revenue-generating underground parking garage operated by 3CDC, which also activates the park with programmed events. Photo credit: courtesy of 3CDC

3. Employment

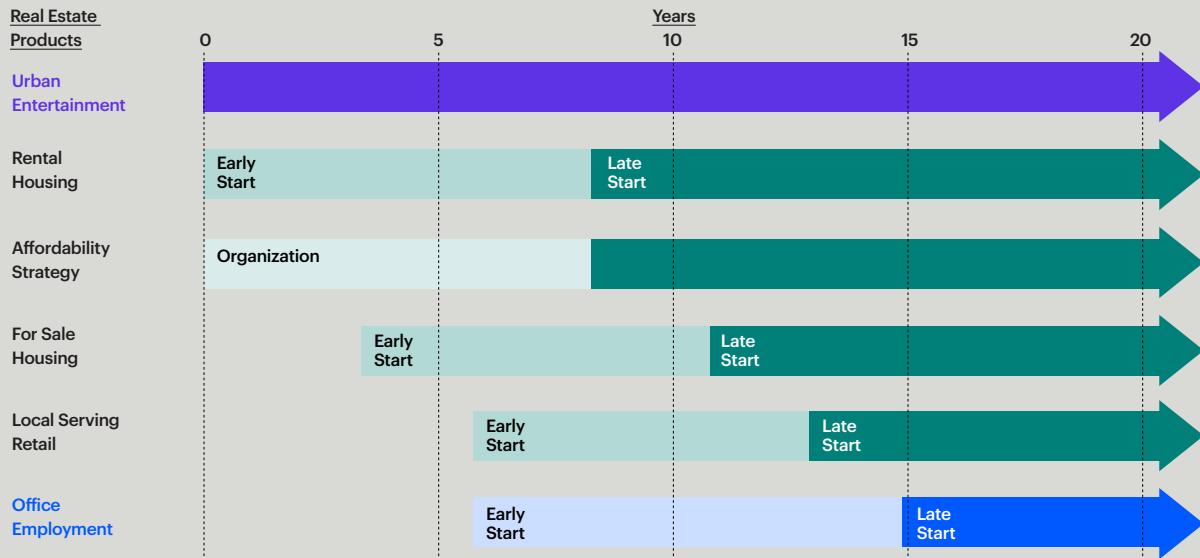Finally, catalytic development needs either substantial employment delivered to the WalkUP early in the redevelopment process or an existing central employment base with significant entry-level opportunity.
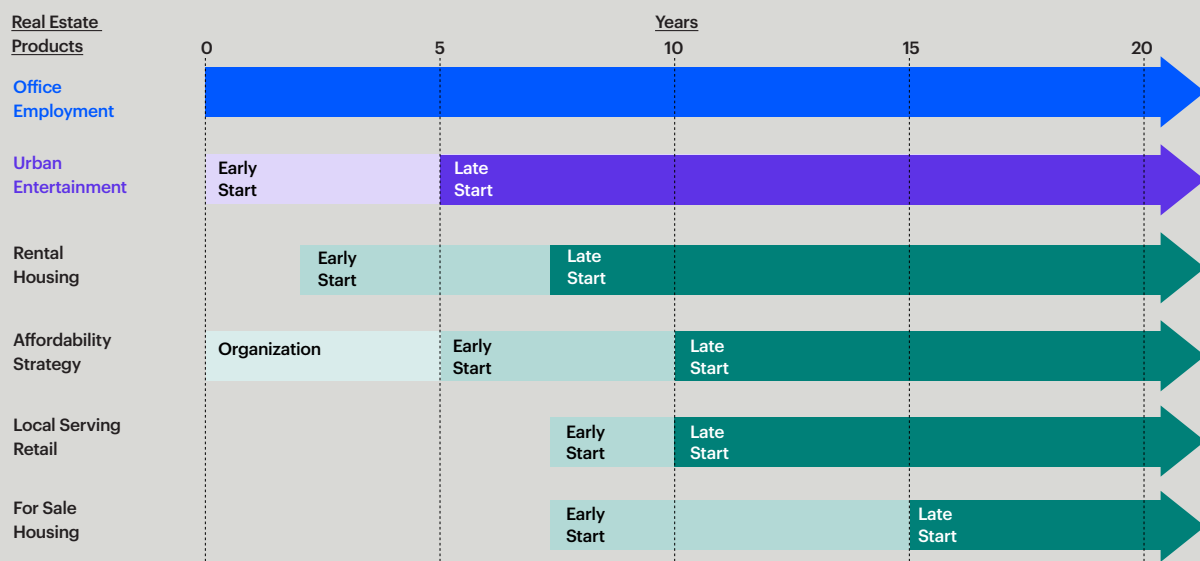
The case studies showed that a key initial step was the involvement of major employers in the catalytic development effort. This may mean maintaining the existing employment base, such as in Chattanooga

and Cincinnati, or a new relocating employer (e.g. Quicken Loans, the University of Washington School of Medicine, and ASU). The ideal scenario is one in which the connection between the catalytic employer and local, sometimes low-income, residents is maximized. In Cincinnati, 3CDC has a conscious strategy to hire local residents. When asked what "revitalization" means, Steve Leeper of 3CDC simply

Fig 1. The conventional model of downtown redevelopment is contingent on urban entertainment for activation.

Real Estate Products	0	5	Years 10	15	20
Urban Entertainment	██				
Rental Housing	Early Start		Late Start		
Affordability Strategy	Organization				
For Sale Housing		Early Start		Late Start	
Local Serving Retail			Early Start		Late Start
Office Employment			Early Start		Late Start

Fig 2. The catalytic model of walkable urban placemaking begins with employment.

Real Estate Products	0	5	Years 10	15	20
Office Employment	██				
Urban Entertainment	Early Start		Late Start		
Rental Housing		Early Start		Late Start	
Affordability Strategy	Organization		Early Start	Late Start	
Local Serving Retail			Early Start	Late Start	
For Sale Housing			Early Start		Late Start

said: "Employment. Most people are now outsourcing clean and safe services … We stopped doing that. We brought everything in-house. That allows us to hire from the neighborhood. It also means we can hire people who, when you do their background check, it might not be coming back so clean. That's all part of our mission. When you see the people that are living in a mixed-income project now working over in the civic space, that, to me, is what revitalization is." Or as Josh McManus of Rock Ventures put it, "Real jobs for real people."
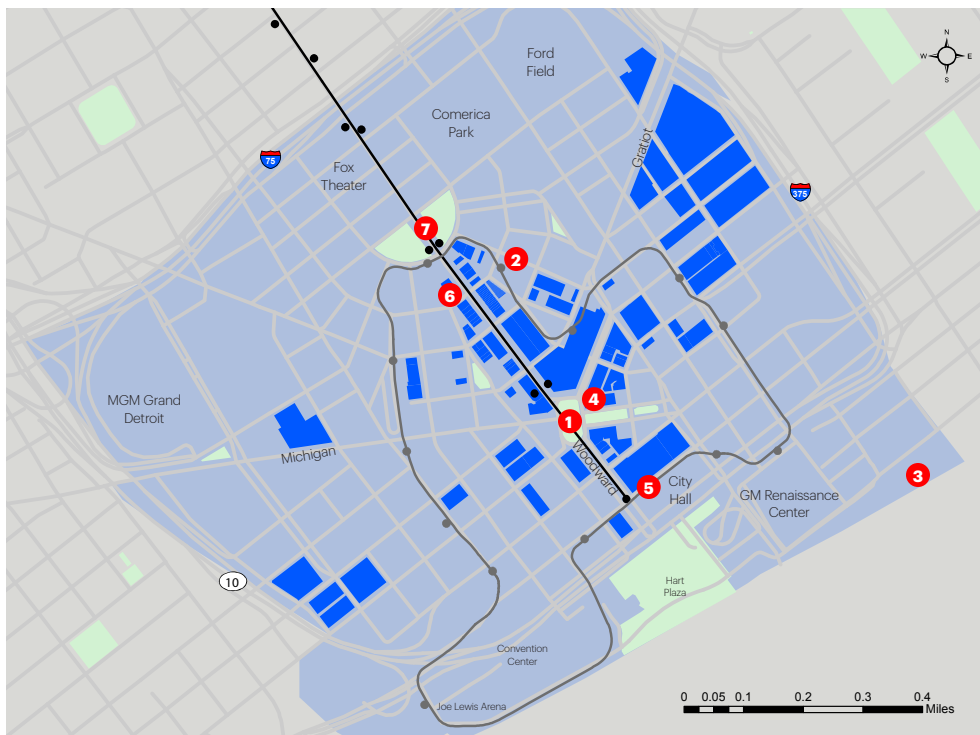
This centering of the development process around anchor employment is an outgrowth of the needs of the knowledge economy. Knowledge enterprises are finding that workers are increasingly demanding more walkable, amenity rich urban places. Employment creation or retention is a far stronger and more stable foundation for urban redevelopment than urban entertainment. In practice, this leads to a development strategy that is distinct from the conventional model of downtown redevelopment. The conventional and catalytic models shown in Figures 2 and 3 on pg 25 illustrate the possible sequence of real estate product types in each strategy.[39] Both the conventional and catalytic development models are proven ways of redeveloping a walkable urban place. It is a matter of being realistic about the existing resources available to that place.

IV. Catalytic development case studies

We identified six case studies that illustrate catalytic development. All have a long enough history to have generated significant economic development and social equity. These six case studies span the continental United States, and occur in a variety of WalkUP types, including downtowns, downtown-adjacent places, innovation districts, and an urban university. Our data collection process consisted of structured interviews with key participants that examine the intentions, strategies, and objectives of catalytic developers and the place context, assets, and needs. In addition, we benchmarked each case study using longitudinal secondary data from the American Community Survey and CoStar. These statistics are referenced in the text and summarized in a table on page 46.

South Lake Union
Seattle

University Park
Cambridge

Downtown
Detroit

Over-the-Rhine
Cincinnati

ASU Downtown
Phoenix

Downtown
Chattanooga

Detroit

WalkUP Type: Downtown

In 1980, Detroit hosted the Republican National Convention. Laura Trudeau, who recently retired from the Kresge Foundation, recalled this as a painful moment of struggle for Detroit's downtown: "People tried to do these fake fixes. They were painting things on the windows out here to try to hide the fact that the buildings were vacant." A quarter century of dramatic interventions focusing on grand-scale urban entertainment and infrastructure followed, including the People Mover (1987), the restoration of the Fox Theater (1988), Orchestra Hall (1989), three casinos (MGM Grand and Motor City Casino in 1999, and Greektown in 2000), Comerica Park for professional baseball (2000), and Ford Field for professional football (2002). The demolition of the historic downtown Detroit YMCA building to construct Comerica Park is illustrative of this one step forward/one step back approach in downtown Detroit through the end of the 20th century. Municipal, county, state, business, and philanthropic leaders were all engaged in these projects. And yet, in 2009, six years after CompuWare moved 4,000 employees into its new downtown headquarters, downtown Detroit's office vacancy rate was still over 21 percent.

The founding of the Detroit RiverFront Conservancy in 2003, the Detroit 300 Conservancy in 2003, the renovation and reimagining of Campus Martius Park in 2004, and the opening of the new Boll Family YMCA in 2005 demonstrated the potential of a different strategy than tourism-oriented large-scale urban entertainment. In the words of Mark Wallace, president and CEO of the RiverFront Conservancy: "People make the place. The Detroit Riverwalk is a diverse gathering place where everyone feels welcome. Everyone now feels proud of the city of Detroit. This is a place where old Detroit and new Detroit can intersect and bump into each other."

This new approach is also articulated in the guiding pillars of the Downtown Detroit Partnership (DDP) as emblazoned in their annual report: "Convener and Balanced Voice, Steward of Place, and Promoter of Equity and Inclusion."[40] Many public and quasi-public functions have been directly assumed by private landowners and employers downtown through the DDP, such as security, programming of the Campus Martius Park and other downtown public spaces, and free Wi-Fi.

The 2010 arrival of Quicken Loans and its family of companies (henceforth referred to by the holding company name, Rock Ventures), led by Dan Gilbert, has supercharged the engagement of employers in the downtown recovery. Gilbert's relocation from suburban Livonia to downtown Detroit coincided with the adoption of a new place-based strategy for his companies that has centered Detroit's development as part of their mission and brand.

By the beginning of 2017, Rock Ventures had acquired and rehabilitated over 90 buildings and brought over 16,000 employees downtown. Approximately one quarter of all workers in downtown Detroit now work for Gilbert's companies. The Rock Ventures parcels, totaling 63 acres, are an estimated 13 percent of the non-roadway acreage in downtown. The family of companies includes gigabit-speed internet infrastructure provider Rocket Fiber, and Rock Ventures has also contributed partial financing of the new light-rail line. Within the space of just a few years, the move of Rock Ventures downtown has brought stability and activity to the area. As DDP President and CEO Eric Larson notes, "The alignment of key forces—

strong leadership ... state and local, clearing of the city's legacy costs, and private/philanthropic efforts—provided the springboard for organizations/individuals such as Quicken Loans/Dan Gilbert to accelerate the downtown's recovery."

By 2016, downtown vacancy rates dropped to under 12 percent. Yet during this same time—from 2012 to 2014—the city went into bankruptcy. Steve Ogden, a local developer and real estate consultant now with Rock Ventures, reflected, "I thought, in a weird way, the bankruptcy would help ... more ingenuity and more innovation. We've hit rock bottom ... Detroit has always been a homegrown, organic kind of gritty community ... There's been lately, over the last five years, a real effort to shine light on entrepreneurship ... These guys and gals are getting into the physical real estate space now. I've seen the transformation of downtown. I can't wait to see it get to neighborhoods."
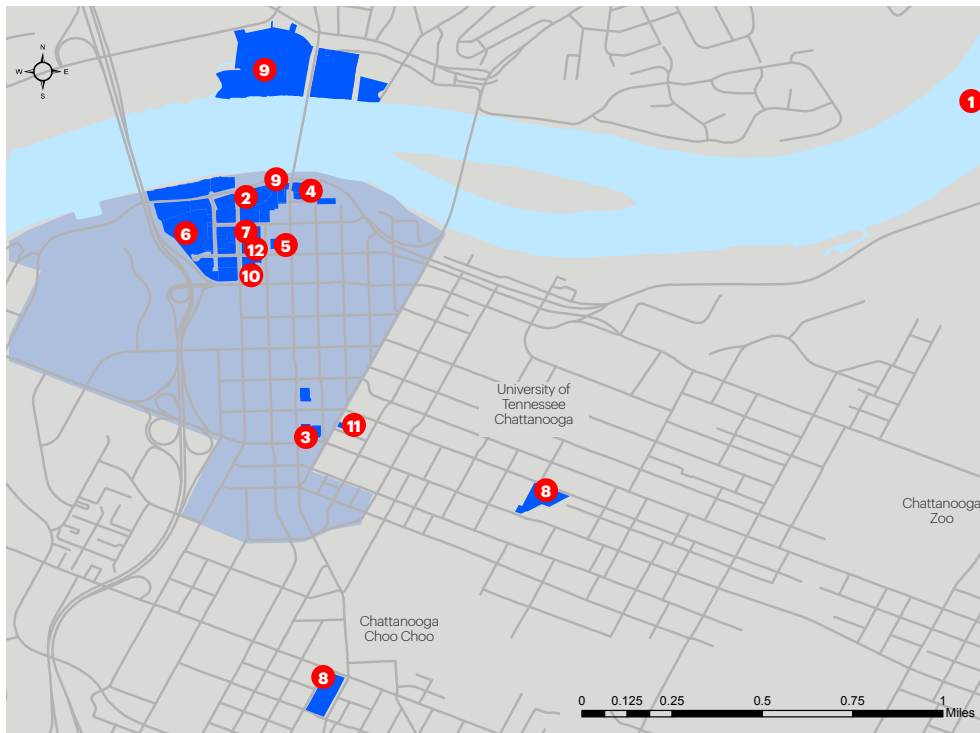
A new class of municipal leaders have stepped forward with Detroit Future City, "a highly detailed long-term guide for decisionmaking by all of the stakeholders in the city ... drawing on the insights of tens of thousands of Detroiters." As Rock Ventures expands its development activities into the neighborhoods, and invites other players to join them downtown, the success of this next phase of development will hinge on the ability of the catalytic developer, the public sector, and the community to collectively engage this framework.

Detroit	Down-town	Wayne County

American Community Survey	Change 2009 - 2016	
Population	-3%	-11%
Median home value	N/A	-31%
Housing vacancy	-3.5%	3.0%

LEHD Survey	Change 2009 - 2015	
Jobs	1%	8%

CoStar	Change 2009 - 2016	
Office vacancy	-9.5%	-5.4%
Retail vacancy	-8.0%	-4.2%
Office rent / sq ft.	15%	4%
Retail rent / sq ft.	-15%	-5%
Multifamily housing rent/sq ft.	N/A	15%

Chattanooga
WalkUP Type: Downtown/Innovation District

In the mid-1980s, the future of Chattanooga and particularly the downtown looked extremely bleak. Kim White, the president and CEO of the River City Company, grew up in Chattanooga and attended the University of Tennessee at Chattanooga (UTC) while working downtown at an art gallery. The employment base of downtown was stable, including the Tennessee Valley Authority, the insurer Unum (formerly Provident), and city and county agencies. But as she recalls, "downtown had no personality. It wasn't a place that you went. I don't have any memories of doing anything downtown as a college student. It really was more about just working." Sarah Morgan of the Benwood Foundation arrived in Chattanooga in the early 1980s and found, "Downtown was boarded up with very little activity." Dalton Roberts, then the county mayor said, "You could fire a cannon ball down Broad Street and never have a threat of hurting anybody ... Going to college was your ticket out."

Kim White left Chattanooga after graduation—only to ultimately return as the steward of a nonprofit development company that plays a catalytic role in the development of today's downtown Chattanooga.

In fact, the story of real estate in Chattanooga over the last 30 years is actually a series of catalytic moves by a relatively small group of developers, all of whom are connected to the nonprofit River City Company.

Founded in 1986, River City Company was formed by the Lyndhurst Foundation, with participation from city, county, and community leaders, all of whom sit on the organization's board. River City's initial capitalization was $12 million from a combination of the Lyndhurst Foundation and local banks. River City used these dollars to acquire and develop 130 acres on the Tennessee River, turning it into the public 21st Century Waterfront, a project spanning almost two decades from acquisition to completion in 2005. Other projects directly developed by River City include the Tennessee Aquarium and Ross's Landing, an outdoor convening and concert space on the river. River City catalyzed additional development through public-private partnerships by disposing of city or River City Company-owned land through RFP processes to private developers, often with tax incentives or public subsidy. These included several projects developed by Jon Kinsey in the 1990s (Riverset Apartments, the Bijou Theater, the visitors center, and the Trolley Barn). Drawn in part through his involvement in these quasi-public projects, Jon Kinsey ran for mayor and served from 1997 to 2001. He was succeeded in office by another real estate developer, Bob Corker, who later became the highly respected U.S. Senator from Tennessee. Their combined terms provided sufficient time for River City Company to complete the 21st Century Waterfront and to extend the development momentum to the Southside, where developer-entrepreneurs of many scales and scopes have been active for almost 20 years, incrementally redeveloping the neighborhoods.

These investments have clearly paid off. While the office market in downtown Chattanooga has always remained stable, the residential population of downtown Chattanooga between 2000 and 2015 increased 23 percent, almost twice the growth rate of surrounding Hamilton County. Between 2007 and 2016, retail vacancy declined from over 8 percent to under 2 percent, even as the average rent per square foot for retail space increased 9 percent. Downtown Chattanooga is once again economically productive and the center of

the metro area with a diverse mix of land uses and people.

Chattanooga made national headlines in 2010 as the first American city to launch municipal high-speed internet. A review of Chattanooga's most recent success fostering technology startups and rebranding as "Gig City" found that the city's success in creating a downtown innovation district, even without the leadership of a major research university, is in large part because of the precedent of the public-private partnership established in the 1980s by the process that created the River City Company and other model nonprofits to solve urban problems.[42] In the words of Ken Hayes, leader of the city-backed Enterprise Center, "Working together really does work."
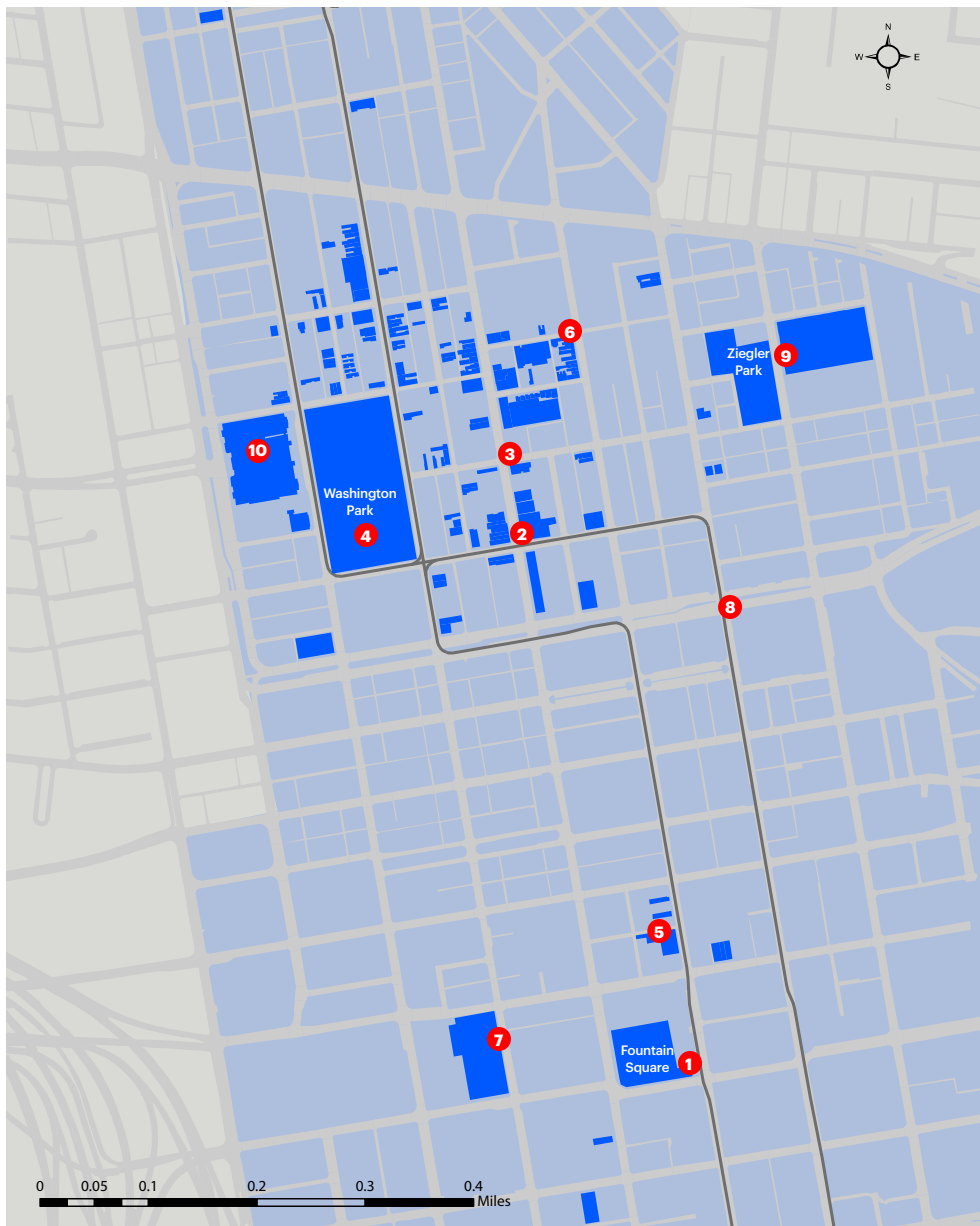
River City continues to catalyze development both directly and indirectly in Chattanooga today. Private developers have brought residential development back to the downtown, attracted by the dramatic 336 percent increase in owner-occupied home values between 2000 and 2015, 4.7 times the growth of Hamilton County as a whole. However, the commercial real estate market is only just showing signs of similar market attraction, with office rents per square foot rising 16 percent in the last decade. Both as a developer of last resort—as with its renovation of the Bijou Theater into The Block—and as a partner to anchor institutions like UTC and Erlanger Medical Center, River City's work is not yet complete.

Chattanooga	Down-town	Hamilton County

American Community Survey	Change 2000 - 2015	
Population	23%	13%
Median home value	336%	71%
Housing vacancy	11.1%	3.7%

LEHD Survey	Change 2002 - 2015	
Jobs	-12%	6%

CoStar	Change 2007 - 2016	
Office vacancy	1%	0.7%
Retail vacancy	-7%	-1.9%
Office rent / sq ft.	16%	22%
Retail rent / sq ft.	9%	-4%
Multifamily housing rent/sq ft.	16%	18%

Over-The-Rhine

WalkUP Type: Downtown Adjacent

Just north of downtown Cincinnati is a mid-rise neighborhood settled by working class German immigrants during the mid-19th century. "Mixed use, mixed income was a huge part of Over-the-Rhine history from day one," recalls long-time resident, business owner, visionary, city councilmember, and character Jim Tarbell. When the National Housing Act of 1961 established a new mortgage insurance program for multifamily rental housing to create affordable housing, the neighborhood was flooded with financing. In fact, Cincinnati led the nation

in the creation of nonprofit affordable housing: According to HUD records, 117 Section 221(d)(3) loans were originated for properties in Cincinnati, more than three times the number for any other city in the United States over any time period.[43] Many of the almost 4,500 units created through this program (and many of the additional 3,433 units created through Section 221(d)(4)) were located in Over-the-Rhine (OTR), though the exact distribution is impossible to determine due to incomplete HUD records. This programming of OTR housing stock dramatically reshaped a neighborhood that contained a total of only 9,933 housing units in the 1950 Census.

At the start of the 21st century, OTR was at a turning point. It had become an oasis of affordability for the lowest-income households, displacing the working class that did not qualify for subsidized rents. In the 2000 Census, 35 percent of housing units were vacant; in one OTR census tract the share reached 47 percent. Into this vacuum came crime. As Cincinnati native and former mayor Mark Mallory recalled from his youth, "Over-the-Rhine … is where prostitution happened … where drug activity happened. This is where, sort of, anyone who was out of the mainstream did their business. And that's the way it was for years, decades." The first American race riot of the 21st century took place in OTR in April of 2001 after Timothy Thomas, a black teenager, was shot and killed by a city police officer, cementing it in the regional perception and reality as an extremely dangerous place.[44]

Local legislators looked for new policy tools to reach OTR. In 2002, then-Councilmember John Cranley led the push to create two tax increment financing (TIF) districts linking downtown and OTR together, allowing downtown tax revenues to finance public investments in the adjoining neighborhood. In tandem, Mayor Charlie Luken formed the Cincinnati Center City Development Corporation (3CDC) in 2003, with jurisdiction over both downtown and OTR. It was time for an intervention, Luken said, "We don't do 3CDC without the social unrest. Because I don't think that people are motivated to get off their duffs until they're scared."

3CDC was established as a nonprofit developer and capitalized with $250 million in patient equity from the private sector, led

by the extraordinary concentration of Fortune 500 companies headquartered in Cincinnati (including Proctor & Gamble, Macy's, Kroger, and Fifth Third Bancorp). Using a focused, incremental strategy, 3CDC has begun to acquire and rehabilitate the historic buildings of OTR. At the street level, 3CDC has restored and rented almost 1 million square feet of income property. Through progressive profit-sharing leases, 3CDC has incubated a new wave of local businesses in OTR, including restaurants and boutiques. From 2000 to 2015, retail vacancy in the 3CDC jurisdiction has declined from over 6 percent to under 3 percent, and the average rent per square foot has doubled.

With the help of New Markets tax credits, 3CDC has created or rehabbed 1,534 housing units in downtown and OTR. The impact on for-sale housing is most dramatic. In 2000, there were only 240 for-sale units in all of downtown and OTR. In a little over 10 years, 3CDC created a for-sale housing market in downtown Cincinnati by building 470 condominiums and townhomes and partnering with PNC Bank to create a custom mortgage for a market with few comparable properties. The median for-sale home value in the 3CDC jurisdiction increased over 300 percent between 2000 and 2015. However, building a resilient and sustainable mixed-income neighborhood will take decades of incremental effort. The residential vacancy rate in OTR has actually increased to 43 percent as of 2015, as HUD mortgages mature and terminate, and property owners opt out of the Housing Choice Voucher program, formerly known as Section 8.[45] The next generation of affordable housing in OTR is currently being rehabilitated from this stock, with 115 units of 3CDC's 443-unit pipeline (26 percent) slated for affordable housing.

Cincinnati	Downtown + OTR	Hamilton County

American Community Survey	Change 2000 - 2015	
Population	-18%	-5%
Median home value	319%	27%
Housing vacancy	7.9%	4.9%

LEHD Survey	Change 2002 - 2015	
Jobs	-14%	-3%

CoStar	Change 2006 - 2016	
Office vacancy	-1.6%	-2.8%
Retail vacancy	-4.4%	-2.2%
Office rent / sq ft.	-5%	-3%
Retail rent / sq ft.	107%	6%
Multifamily housing rent/sq ft.	50%	20%

South Lake Union

WalkUP Type: Downtown Adjacent/Innovation District

How many Seattleites does it take to change a lightbulb? 100. One to change the light bulb and 99 to debate endlessly whether it needs to be changed. This old saw about the "Seattle process" captures the profound skepticism of both civic elites and collective-scale efforts that is woven in Seattle's urban history; from voters' rejection of the Bogue Plan in 1912 to the failure of the Forward Thrust capital transit package in 1968 to the present day. In contemporary Seattle, this civic skepticism is colliding with a modern reality in which the pace of change is extraordinarily rapid. The development of South Lake Union is a case study in building around and through these conflicts.

In a 1989 column, one Seattleite, Seattle Times columnist John Hinterberger, proposed redeveloping the South Lake Union area into a large green space, along the lines of Central Park in New York.[46] The concept gained significant traction, eventually developing into the Seattle Commons, a community-driven mixed-use plan with a 70-acre green space at its heart. To illustrate how the pace of change has accelerated in the past quarter century, even as the "Seattle process" has remained constant, the vision for the Commons in 1993

imagined the unprecedented: "a wireless community, where residents and workers would carry a phone at all times."[47] Tech entrepreneur Paul Allen of Microsoft invested in the project, loaning the Commons committee $20 million to acquire land. Ownership of the land reverted to Allen in 1996 after Seattle voters twice declined to fund implementation of the Commons master plan via a public bond.

As the 21st century dawned, the American economy entered a short recession caused by the bursting of a speculative bubble caused by overbuilding and overvaluation in the technology sector. While national memories of the "dot-com bust" quickly faded in the face of the Great Recession of the late 2000s, in Seattle the impact "was huge," recalls Tim Ceis, who entered city government as Mayor Greg Nickels' deputy mayor in 2002. For Seattle, he said, "revenues were down … We had to cut $60 million administratively. That's a 10 percent cut … It was painful. It wasn't a great way for a new mayor to walk in the door." Looking ahead, the Nickels administration was "very interested in economic development … We knew we had to figure out a way to start rebuilding the local economy."

Paul Allen's development arm, Vulcan Real Estate, spent a decade after the defeat of the Commons to build their initial 10 acres in South Lake Union into a 60-acre holding. While a small residential neighborhood existed around Cascade Park, most of Vulcan's holdings consisted of obsolete warehouses dependent on the timber industry and South Lake Union's former role as a freight port. In 2000, the population of South Lake Union was a scarce 3 people per acre, far below neighboring Belltown (28 pp/ac), Capitol Hill-Broadway (29 pp/ac), East Queen Anne (18 pp/ac), or Lower Queen Anne (21 pp/ac). Mike McQuaid, a fourth-generation Seattleite and former board president and current transportation chair of the South Lake Union Community Council, recalled it was "a neighborhood that had really become cast aside in a lot of ways in Seattle, minimally functional." The land was far from "ripe" for redevelopment. Recalls Tim Ceis, Vulcan approached the Nickels administration to ask for "infrastructure … They also had some pretty grand ideas about community building, which would require the city's participation, around parks, community issues, and that kind of thing. They also needed some help with zoning."

Through a series of land use code changes, text amendments, and the complete rezoning of South Lake Union in 2013, Vulcan ultimately developed over 6 million square feet of biotech, office, retail, and residential square footage over a 15-year period, creating a burgeoning new innovation district largely from scratch. Early tenants included the expanding Fred Hutchinson Cancer Research Center and the University of Washington Medical School. The pace of development was increased by the arrival of a major build-to-suit tenant, Amazon, who has since expanded beyond South Lake Union into the neighboring Denny Triangle area to become the largest office occupant in greater downtown Seattle. Between 2000 and 2015, South Lake Union gained over 5,000 residents, 5,000 jobs, three modernized parks, and a streetcar line.

Seattle	South Lake Union	King County

American Community Survey	Change 2000 - 2015	
Population	92%	18%
Median home value	465%	57%
Housing vacancy	-8.3%	1.8%

LEHD Survey	Change 2002 - 2015	
Jobs	22%	22%

CoStar	Change 2000 - 2016	
Office vacancy	7.1%	4.5%
Retail vacancy	0.5%	3.0%
Office rent / sq ft.	41%	12%
Retail rent / sq ft.	N/A	N/A
Multifamily housing rent/sq ft.	103%	69%

The city of Seattle was a conscious co-investor in the neighborhood, putting over $482 million in local and federal funds into Mercer Street, plus Cascade, Lake Union, and Denny Parks, the streetcar, and a new power substation. In the decade following 2001, the neighborhood generated $156 million in tax receipts. Looking forward to 2022, the city projected that South Lake Union will generate an average of $16.2 million per year in recurring general fund revenues, including property, sales, utility, and business and occupation taxes.[48] These four revenue sources are 81 percent of the city's general subfund.[49] Assuming no future one-time general fund revenues, no additional development, no tax rate or assessed value changes, and applying these recurring revenues to the total public expenditure (local and federal), the payoff date is 2031. In reality, these assumptions are highly conservative. As of 2012, the city had projected a "payoff" of the local portion of the public investment by 2017.[50]

University Park at MIT
WalkUP Type: Innovation District

There is increasing media and scholarly interest in the potential of universities to be catalytic placemaking agents.[51],[52] The Massachusetts Institute of Technology (MIT) was an early adopter of this strategy, inspiring substantial land acquisitions in Cambridge beginning in the 1960s—20 years before becoming one of the founding institutions of the Association of University Real Estate Officials and over 40 years before the establishment of the MIT Investment Management Company (MITIMCo).[53]

Looking west from the MIT campus on the Charles River, the Cambridgeport neighborhood was profoundly changed by deindustrialization. The university spent 27 years acquiring the approximately 40 parcels that ultimately composed the University Park development, an investment of time and capital that few institutions or agencies have the capacity to undertake. Its ultimate assembly of 27 acres was the equivalent of 20 percent of the MIT campus, and offered a singularly unique opportunity to extend MIT's footprint in Cambridge and meet its three objectives: positive return on investment for MIT's net assets; placemaking and improved

campus and neighborhood access to newly developed amenities; and, according to Steve Marsh, managing director of real estate at MITIMCo, "facilitate an innovation environment surrounding MIT" to achieve the university's mission of creating and applying knowledge through research, teaching, and collaboration.

The university convened several attempts to master plan the parcel assembly. As Phil Trussell, retired director of real estate for MIT, recalled, "When I took my job, I found studies stacked up ... [MIT] tried many different schemes ... a group that consisted of professors and students, neighborhood people ..." But it ultimately fell short on the in-house capacity to get a project scoped and financed, much less zoned and built, in the context of a ground lease, allowing for the continued ownership of the land by MIT. These efforts did build internal consensus that the parcel assembly would become a mixed-use development with commercial and residential components. In 1981, Forest City won a competitive request for proposals to be MIT's partner in building what eventually became University Park, through a land transfer agreement that allowed for a 20-year incremental development process. The earliest buildings were a mix of adaptive reuse of vacant factory structures for labs and housing, and new spec office construction. Spec office, however, was unbuildable after the savings and loan crisis produced the 1990 recession. At that point, financing challenges could have compromised the entire project, but for the patience of Forest City and MIT, and the flexibility of the rezoning negotiated with the city of Cambridge. Instead, the developers were able to capture a biotech boom in the early 2000s, fueled by young talent and faculty innovation from MIT. Today at University Park, the 1.7 million square feet of rentable commercial space, 210 hotel rooms, 674 housing units, and 2,649 garage parking spaces all return a percentage of their rent to MITIMCo under the terms of the ground lease. The buildings will revert to MIT after 75 years.

The city of Cambridge has realized significant fiscal benefits from the development as well, which were badly needed at the time. As retired Cambridge city manager Bob Healy recalled, the 1981 statewide limit on property tax increases meant, "For fiscal 1982, the city had to cut its budget by 12.5 percent. It was very painful." Today, in addition to

the roughly $11 million in property tax revenue per year derived from the University Park development, 22 percent of the housing units built are affordable, and the development contains a one-acre public park. Despite the costs associated with rezoning the parcel, such as building out the street grid and utilities, and including community goals like public space and affordable housing, Forest City's team leader for University Park Gayle Farris describes University Park as "among Forest City's most successful projects—even now, some 15 years after completion."

Cambridge	University Park	Boston-Somerville-Cambridge
American Community Survey	**Change 1990 - 2010**	
Population	33%	5%
Median home value	148%	161%
Housing vacancy	2.7%	0.4%

LEHD Survey	N/A	
Jobs	N/A	N/A

CoStar	Change 2006 - 2016	
Office vacancy	-1.3%	-2.6%
Retail vacancy	4.6%	-0.8%
Office rent / sq ft.	43%	29%
Retail rent / sq ft.	-13%	8%
Multifamily housing rent/sq ft.	29%	23%

University Park was a landmark in the urbanization history of Cambridge that has created a path for another generation of development, led by major firms such as Boston Properties and Alexandria Real Estate Equities. As former city manager Bob Healy observed, "Given that Cambridge is only 6¼ sq. miles … you probably only have about 4½ sq. miles of developable property. So density is the key … acceptance of density was a big part of this. Density was a negative for years." The MIT-Forest City partnership at University Park demonstrated the potential of a dense mixed-use project to create financial returns, generate tax revenue, minimize traffic impacts, and create affordable housing. Today, MITIMCo is a successful real estate developer—their land, buildings, and equipment grew 10 percent just in 2016—poised to pursue their next generation of development in Kendall Square on five MIT-owned surface parking lots, and on the 14-acre Volpe site they are acquiring from the federal government.

Phoenix

WalkUP Type: Urban University

In the years leading up to the Great Recession, Maricopa County, the home of Phoenix, had been booming, increasing in population by nearly 25 percent between 2000 and 2010. But this growth bypassed downtown Phoenix, where the number of residents declined by 9 percent during the same period. The employment picture in downtown Phoenix was similarly unstable, hitting a peak of 54,223 jobs in 2007 and then falling 13 percent by 2010. Phil Gordon was elected mayor in 2004, and the fiscal picture was fragile. As he recalls, "I had to make some hard decisions because when I was mayor, it was the worst eight years of Phoenix's history in budget." As former economic development director and Gordon's chief of staff Dave Kreitor points out, "local government is dependent on sales tax" in Arizona and "annexation laws in Arizona are fairly liberal," leading to

a decades-long economic development strategy based on expansion, rather than downtown development.

"Phoenix never had an urban downtown," according to Kreitor, but after Gordon's election, "Three things happened … the ASU campus … the first segment of light rail was in construction … then, bang, 2008." The foreclosure crisis hit Maricopa County very hard. The collapse of endless auto-dependent suburbanization as an economic model was a shock for Phoenix. John Graham, executive of Sunbelt Holdings, was right in the middle of it. As the developer of 55,000 acres of master planned residential developments over the past 35 years in Arizona, California, Texas, and Georgia, Graham was brought up short: "Our market collapsed in the first quarter of 2006 and didn't recover, didn't recover, didn't recover, so about 2009 we kind of said we better start thinking of additional things to do."

As Maricopa County's real estate market bottomed out in 2008, downtown Phoenix was surprisingly rising from the ashes. Arizona State University president Michael Crow, who came to the school in 2002 from Columbia University in New York City, brought with him a vision of an urban campus for ASU in the region's downtown. He found a ready partner in Mayor Phil Gordon. In the words of David Kreitor, in an "unbelievable flyer by the city," Phoenix signed an intergovernmental agreement with a state entity (ASU), in which the municipality agreed to develop a campus, including land acquisition and buildings. In return ASU would bring academic programs, develop student housing and parking, and operate and maintain the campus. This agreement was signed in 2005; by 2006, a majority of Phoenix voters approved a bond measure to provide almost $240 million to finance the effort, just as the foreclosure crisis began. City voters did not have to wait long to see results from their investment. The ASU colleges of public service and nursing, and the school of journalism, were relocated into new buildings in downtown Phoenix between 2006 and 2008, bringing 7,500 students, over 1,000 staff, and new energy.

The region has stabilized since 2008. Downtown Phoenix's residential population and job count now exceed 2000 levels. Commercial rents downtown are up an average of 27 percent in office and retail from

2006 to 2016, though they have declined in Maricopa County as a whole. John Graham and Sunbelt Holdings are now building condos downtown. However, from his seat as a civic leader, Graham observes that the recovery is not complete: "We lost about 300,000 jobs in Arizona. We've now got them back ... but if you aggregate the salaries of the recovered jobs ... and this is before inflation adjustment ... we're about 17 percent less than we were ... our average GDP per person is dropping."

The future of Phoenix is still fragile. Notes Graham, "Basically 50 percent of our kids K-12 are living near poverty levels." Mayor Gordon and his staff saw clearly the centrality of improving education to the future of Phoenix, and as David Kreitor observed, "We have many school districts, high school districts principally, around downtown where we had very low college attainment ... They had no exposure to a major university. The thinking was if you could put this university proximate to where these high schools were you could ... connect them and give them a chance."

The downtown Phoenix campus has brought innovative new programs to Phoenix, including a legal aid clinic, a charter school, and an outreach program run by the school of social work, effectively creating a social innovation district. The legacy of trust between the city of Phoenix and ASU is only beginning to demonstrate its full potential. The economic impact of bringing university education to downtown Phoenix will ultimately not be measured in job or real estate dollars, but in the generational impact of increasing higher education rates and training a diverse and talented workforce for a knowledge-driven, rather than consumption-driven, Arizona economy.

Phoenix	Down-town	Maricopa County

American Community Survey	Change 2009 - 2016	
Population	-11%	31%
Median home value	-51%	-16%
Housing vacancy	13.7%	0.2%

LEHD Survey	Change 2006 - 2015	
Jobs	-6%	5%

CoStar	Change 2006 - 2016	
Office vacancy	6.5%	4.6%
Retail vacancy	0.1%	2.7%
Office rent / sq ft.	18%	-2%
Retail rent / sq ft.	37%	-19%
Multifamily housing rent/sq ft.	26%	19%

Case Study Summary

	Detroit		Chattanooga		Cincinnati		Seattle		Cambridge		Phoenix	
	Down-town	Wayne County	Down-town	Hamilton County	Down-town + OTR	Hamilton County	South Lake Union	King County	University Park	Boston-Somerville-Cambridge	Down-town	Maricopa County

American Community Survey	Change 2009 - 2016°		Change 2000 - 2015^		Change 2000 - 2015^		Change 2000 - 2015^		Change 1990 - 2010^		Change 2009 - 2016°	
Population	-3%	-11%	23%	13%	-18%	-5%	92%	18%	33%	5%	-11%	31%
Median home value	N/A	-31%	336%	71%	319%	27%	465%	57%	148%	161%	-51%	-16%
Housing vacancy	-3.5%	3.0%	11.1%	3.7%	7.9%	4.9%	-8.3%	1.8%	2.7%	0.4%	13.7%	0.2%

LEHD Survey	Change 2009 - 2015		Change 2002 - 2015		Change 2002 - 2015		Change 2002 - 2015		N/A*		Change 2006 - 2015	
Jobs	1%	8%	-12%	6%	-14%	-3%	22%	22%	N/A	N/A	-6%	5%

CoStar	Change 2009 - 2016		Change 2007 - 2016†		Change 2006 - 2016†		Change 2000 - 2016		Change 2006 - 2016†		Change 2006 - 2016	
Office vacancy	-9.5%	-5.4%	1%	0.7%	-1.6%	-2.8%	7.1%	4.5%	-1.3%	-2.6%	6.5%	4.6%
Retail vacancy	-8.0%	-4.2%	-7%	-1.9%	-4.4%	-2.2%	0.5%	3.0%	4.6%	-0.8%	0.1%	2.7%
Office rent / sq ft.	15%	4%	16%	22%	-5%	-3%	41%	12%	43%	29%	18%	-2%
Retail rent / sq ft.	-15%	-5%	9%	-4%	107%	6%	N/A	N/A	-13%	8%	37%	-19%
Multifamily housing rent/sq ft.	N/A	15%	16%	18%	50%	20%	103%	69%	29%	23%	26%	19%

°All data reported are 5-year estimates; for Phoenix, five-year estimates at the tract level were not available for 2006, so we report data from 2009.

^IPUMS NHGIS data to link changing Census geographies between decennial periods

‡Available years of LEHD data vary by state; these date ranges reflect the earliest available year relevant to each case study through 2015, the most recent year released at the time of this analysis.

†CoStar data availability is less than the time period of interest; in these cases we report all available data.

*Employment change not reported for University Park because Massachusetts LEHD data did not begin until 2011.

V. 12 lessons for catalytic redevelopment

A look for patterns across our case studies reveals successful strategies as well as potential pitfalls in catalytic development. In addition to the three requirements previously identified (patient equity, integrated development, and employment), all essential to catalyze redevelopment in the first place, we identified 12 lessons that can inform potential catalytic developers, private and philanthropic investors, city leaders, anchor institutions, and other stakeholders. These lessons, sometimes learned the hard way by our case study participants, represent opportunities to refine the catalytic development model, improving outcomes and reducing risk.

1. Catalytic development generally emerges from crisis

All of our case studies identified some kind of crisis as the context for catalytic development in the WalkUP, whether it was the riots in Cincinnati, young people leaving Detroit and Chattanooga, or falling government revenues and contracting municipal budgets in Seattle, Phoenix, and Cambridge. In the most extreme cases, the downtown or other potential walkable urban place had hit rock bottom from a market perspective, i.e., conventionally underwritten development could not be financially justified, and psychologically there was a stigma that prevented people from locating businesses or other land uses there.

While it would probably be possible for catalytic development to occur within positive market conditions and psychology, the six

case studies were located in down and out market locations. Even when everything seems to be against these types of places, they have several advantages as potential sites for catalytic growth. First, the civic leadership, public, nonprofit and private, may be willing to try fundamentally different and unconventional strategies with extraordinary investment, if it is available. Second, the baseline cost of land and real estate is lower than it is in areas that have stronger economies, though this may not last long as land owners get inflated perceptions of the value of their land. Third, the general availability of land and space for infill development can provide opportunities for creative redesign on a larger and less incremental scale because it is easier to assemble parcels that are proximate to each other.

The existence of the "culture of scarcity" is an opportunity to begin the process of change in the built environment through a willingness to take risk. However, if previous redevelopment efforts have failed,

The existence of a "culture of scarcity" is an opportunity to begin the process of change in the built environment through a willingness to take risk.

the enthusiasm for trying radical initiatives may be limited in the short term. Josh McManus, formerly of Rock Ventures, identifies this burn out as a "crisis of confidence" that produces "scar tissue" on citizens at the local level and unproductive leadership that stokes "fear of being let down again ... preying on the fears of people and telling them they need to be protected." Roxanne Qualls, a former mayor of Cincinnati, described this dynamic as "heightening the contradictions ... not ... resolving the issues."

2. Catalytic developers have a focused intention and mission.

Catalytic developers almost always come with a grand vision, intention, and vast experience in executing big visions, though usually not in creating a walkable urban place. Catalytic developers, whether institutions, companies or individuals, have generally been highly successful in their main line of business and pour their energy and resources into the vision of a revitalized WalkUP. This track record is crucial to either have earned the substantial private patient equity to

invest in the catalytic development or have a successful public-sector history to obtain taxpayer investment in the initiative.

Catalytic developers in the case studies tend to be led by a proven leader who brings credibility from a combination of vision, track record, and access to patient capital. In a given community, there may be many people with vision, but the catalytic developer has the financial means and/or credibility to turn the vision into action. The difference between a notion and a realizable plan is money.

The difference between a notion and a realizable plan is money.

Catalytic developers also have a personal, emotional stake in the place. Unlike most conventional development, which is only about creating a cash flow or the highest sale price possible, the motivation must include a deep, possibly life-long, commitment to the place. Dan Gilbert and Detroit, the major corporations and foundations headquartered in downtown Cincinnati, Jack Lupton's commitment to downtown Chattanooga, MIT's commitment to its Cambridge campus of the past and the next 150 years—all believed that their specific walkable urban place mattered.

The catalytic redevelopment of downtown Chattanooga began in 1984, when Jack Lupton's Lyndhurst Foundation formed the nonprofit Chattanooga Venture. Jon Kinsey, who grew up in Chattanooga but had left to pursue real estate development opportunities elsewhere, recalled that "Jack Lupton, who I'd never met, did an interview with the Chattanooga Times ... he was going to give back to the city and he was going to get this city moving again. That meant investing a lot of money. When I saw that, I went, 'That's a game changer. I ought to go do something.'" The critical point is the intersection of leadership and capital that believe in the enduring value of a place, regardless of its current land market or economic condition.

3. To be successful, a developer's personal mission must be balanced by an inclusive project vision.

Jane Jacobs wrote, "Cities have the capability of providing something for everybody, only because, and only when, they are created by everybody." Catalytic developers may struggle with finding a balance between their need for agility and control, and the need to engage a broader community. Ultimately, an inclusive process is the best way to obtain the required zoning, possible incentives and infrastructure improvements, and achieve equitable outcomes. The case studies and other experience across the country demonstrate methods of achieving upfront and continuous community input into the redevelopment process.

• **Visioning process**—In 1984, Chattanooga Venture led a citywide participatory visioning process, engaging over 1,700 residents in five months. The final vision included more than 40 goals on topics including economic development, education, social services, and the environment. Chris Crimmins, a former River City Company executive and today a partner in the Chattanooga Land Company, was a recent college graduate at the time. He recollected:

"That was unheard of around here, everybody thought things happened in Chattanooga through this smoke-filled room that all of the leaders got together, and just decided that we were going to do A, B, or C—and it was just done without any kind of public input. So, this was a remarkable moment that Chattanoogans could come to these public meetings and speak up … It was very unique at the time that it was a very grassroots process where the public was setting the agenda, and not necessarily the elected leader. The Chattanooga Venture public visioning process coincided with Jack Lupton's energized focus on revitalizing the city and the Lyndhurst Foundation shifting their focus from the traditional entities they had supported for decades and writing to them saying 'We are going to change how we are deploying our philanthropy.' The Chattanooga Venture public process along with the Tennessee Riverpark Masterplan created a new vision and the River City Company was created to wake up every

day and implement that vision."

Visioning and stakeholder engagement represented a substantial initial fixed cost for Chattanooga, which ultimately delivered returns by building buy-in that has made it possible to effectively execute over decades.

• **Place-based strategic planning**—The Chattanooga Venture visioning process was followed by place-based strategic planning—a comprehensive market-based, existing asset-focused, economic (private and public), urban planning, and place management planning process. This approach produces a clear strategy for downtown WalkUPs along with a detailed implementation plan. The implementation plan relied on the various stakeholders to take responsibility for specific strategic implementation items, which resulted in the first strategy being implemented in five years, which led to a subsequent update of the strategic plan.

• **Charrette process**—A charrette is a now-popular urban planning process, occurring over a couple days to a full week, open to the public and results in a comprehensive development plan with community input and buy-in. Generally paid for and lead by the catalytic developer, it is usually staffed by professional urban planners. The process is best if there is an iterative financial model running in parallel to insure the plans make financial sense. It can be efficient since in a short, defined time period, a master plan is developed and adopted by the community. The public entities who will need to approve the plan will have also been involved so, while it still needs to go before the various regulatory bodies for official approval, their staff and commissioners will have been part of the charrette process and would have seen the public input process.

• **Master planning process**—This is a traditional government or developer-led effort using professional staff or consultants to develop a master plan for the development area. It generally involves numerous public meetings, typically occurring at night, which have a tendency to attract dedicated opponents, many times leading to heated arguments between opponents and the proponents of change. However, the result is a clear document that illustrates what

will be built and balances community desires and market realities. As Gayle Farris of Forest City Company recalls of the University Park master plan, "It was important that the mixed-use district master plan we were creating provide a transformative urban vision which the city and neighborhood could embrace, while also at a scale and density that was economically viable." For University Park, the master plan was a foundational document that included a zoning document and design guidelines adopted by the city of Cambridge, but that still allowed some flexibility in sequencing, timing, and products.

• **Community planning process**—The failure of the Commons park in South Lake Union indicated that the community was "strongly resistant to change," according to Phil Fujii, Vulcan's Community Relations Manager. After the Commons failed, Fujii worked "to gain trust first. Once you gain trust, that means they're willing to listen … we hired a consultant, invited a number of community stakeholders, to come in and identify a vision and the important qualities of their neighborhood." Ultimately Vulcan worked directly with community groups to create a series of documents articulating a set of goals and design principles and objectives that were formally adopted by the city of Seattle as the South Lake Union Neighborhood Plan, which is today stewarded by the community-based South Lake Union Community Council. These abstract goals include economic and job growth, positive fiscal impact, and environmental sustainability, which most people could get behind. With this community plan being generally accepted, Vulcan could begin incrementally implementing it with less overt opposition.

• **Crowd source planning**—A new process, crowd source planning requires the catalytic developer to take a hands-off approach to the redevelopment planning process. It allows citizens to generate ideas for new development projects, infrastructure improvements and place management through an online process. This broadens participation to potentially thousands, avoiding the potential for a small number of opponents from blocking the project. The catalytic developer will have to specify that the development and infrastructure ideas must be financially feasible for ideas to be accepted. This has been successfully employed on a number of WalkUPs in the suburbs of New York City.

Given the inherently unequal power structure created by privileging the developer's vision over other visions, due to successful experience and access to capital, every community struggles with how—or whether it is even possible—to resolve this tension in a productive and inclusive way. Across our case studies, singular leadership from catalytic developers (as a decisionmaking model distinct from democracy, committees/appointed boards, or group consensus) has attracted considerable criticism that catalytic developers have deployed various community engagement strategies to mitigate. The agility and speed characteristic of catalytic developers may instinctively conflict with a community's need to be authentically heard.

What these engagement strategies have in common is what Josh McManus, former chief operating officer of Rock Ventures, describes as "shifting from a culture of scarcity to a culture of abundance. A shared belief system that says that more is more. Working together works. People can win at the same time. That it's a both/and proposition. That you need long-term insiders and new-term outsiders." This shift cannot be achieved by the catalytic developer alone and needs the participation and buy-in of the public and civic leaders. In large-scale catalytic developments focusing on the downtown, like Detroit and Chattanooga, philanthropic leadership—e.g. Detroit Future City and Chattanooga Venture—can serve as a neutral convener.

Community engagement and communication must be an ongoing effort, not just a startup cost.

Articulating a clear plan gives the private sector and other players something to buy into and a bigger mission to be a part of. There is no one process or set of stakeholders that is guaranteed to produce a compelling vision, but an inclusive process is generally a more resilient process—one that adds value, knowing that there will be challenges along the way when the timeline takes longer than anticipated. The stakeholders, including employees, students, employers, city, and others are all motivated by being part of something bigger and unique in the turnaround of the place. However, this means that community engagement and communication must be an ongoing effort, not just a startup cost.

4. A successful catalytic development is as much about leveraging existing assets as it is about capital, land, and jobs.

Before chasing the rainbow of capital, developers need to look for gold right where they stand. Assets to be inventoried fall into many categories, some of which go unrecognized.

• **Economic assets**—There are regionally significant employment, business clusters, public-sector concentrations, higher education, medical centers, cultural and professional sports, federal or state government, etc., concentrated in these places. These economic assets in the WalkUP either comprise export business or functions, bringing new dollars into the metropolitan economy, or regional serving businesses and functions, such as banks, law firms, real estate firms, government, etc. Developers must uncover and understand these economic roles and consider how these businesses and functions can be expanded and/or how new businesses and functions can be attracted to the area.

• **Available land**—There may be land parcels owned by existing businesses or government that could be re-purposed for redevelopment.[54,55] These could include obsolete rail or port facilities, storage yards for buses and trucks, outdoor storage for industry and the public sector, surplus or obsolete government and university land, etc. This land and property is generally owned outright at zero cost basis so could be invested in redevelopment as patient equity, which might translate into 10 to 40 percent of the required financing for the redevelopment to proceed.

• **Parks and waterfronts**—All of the case studies in this brief have made significant investment in high quality public spaces. As Jim Ratner of Forest City explains, "You must create a great place. You must create a place that is compelling to people, that people want to be in. When they walk into it, they feel good about it … The open space is definitionally important to these mixed-use projects. It's the open space that makes it a community asset, as well as an asset for the tenants who are there, so you have to get [it] right. That is absolutely

fundamental." Across the board, the developers in our case studies believe this so strongly that they have invested resources not only in capital construction, but also ongoing maintenance and programming.

Both the research literature and the developer experience in our case studies find a strong connection between financial returns and direct adjacency to high quality open space. However, our case study participants emphasized the moral and political necessity of these public spaces above and beyond a profit motive. According to Steve Leeper of 3CDC, "Washington Park on a summer night is what revitalization is for me. It is the most democratic space you can ever imagine. It's people of every age, race, and income level coming together. The demographics may change, depending on the music genre or programming on a given night. But, on the whole, you sit there and you just say, 'This is why we do what we do.'" These public spaces are where the existing community can meet and mingle with the people who occupy the new development and gain immediate direct and personal benefit. There can be no equitable and inclusive catalytic development without capital, maintenance, and programming investment in high quality public space.

High quality public space is an economic, moral, and political necessity.

• **Obsolete transportation infrastructure**—The most exciting new walkable urban amenity of this generation in the United States has been the High Line in New York City. This obsolete transportation infrastructure, which would have been financially infeasible to build from scratch, was an eyesore that discouraged development for decades from the Meatpacking District to the south up to Hudson Yards to the north. After its conversion into an elevated linear park, all of the real estate on either side of the High Line became highly desirable for redevelopment, which in turn sparked redevelopment of all of the WalkUPs it meandered through. Another conversion of obsolete transportation infrastructure that is fundamentally changes everything it touches is the Atlanta BeltLine, a 22-mile collection of former freight rail lines that form a circular park and eventually light rail line around greater downtown Atlanta. Just a partial walking path on the east side has sparked billions of new development. The light rail construction will spark even more.

• **Memory**—The most undervalued but possibly the most important asset is the memory of what the WalkUP once was. The golden era of most downtowns and other walkable urban places was in the 1950s, when the baby boomers were children. Those childhood memories can have a remarkable motivating influence on providing resources (financial, civic, private sector, etc.) to a revitalization effort. As a city councilmember in her 60s, representing downtown Albuquerque, said about why she supported the rehabilitation of a 1920s movie palace on the main street of the city, "That is where I had my first kiss." Interestingly, even in the case of Phoenix, which does not have a storied history as a walkable urban place, both ASU President Michael Crow and University Planner Rich Stanley came to Arizona from Manhattan. When designing the downtown Phoenix campus, ASU advocated for over $20 million of their bond money to be used for a public park. Stanley explains that "I knew it from Washington Square Park ... I knew how that worked at NYU. The park links the city and the campus ... the kids come to play in the fountain there [at Civic Space Park], the homeless folks hanging out on the grass, the movies at night during the spring, and the students going back and forth, has all of a sudden make this feel like it's a piece of the city and made the students feel like they're in the city, not just coming downtown to the campus." Even imported memories can play an important role in motivating new walkable urbanism.

• **Historic buildings**—Related to memory, historic buildings embody perhaps the most powerful connection to the past. They also remind one that what we build today will be the inheritance of the future generations to know that we were here. The granularity of historic buildings, discrete evidence of many generations and architectural styles, is an organic characteristic of economically productive and beloved walkable urban places. It is challenging for a contemporary catalytic developer to achieve this authenticity through new construction, even working with a diversity of architects, in part because some design choices are restricted by current zoning and neighborhood design standards and architecture is generally a reflection of a specific point in time.

Adaptive reuse is also a way to initiate development and deliver early returns, activity, and promises, prior to obtaining more desirable

zoning and market support for new construction, a strategy used in all of our case studies. The extraordinarily short timeline to financial returns in highly troubled contexts like downtown Detroit, downtown Phoenix, downtown Chattanooga, and Over-the-Rhine are in part because of the catalytic developers' commitment to stabilizing and restoring existing structures—even if they are not "significant" by the Secretary of the Interior's standards. Engaging in historic preservation and adaptive reuse demonstrates that the catalytic development has a soul.

A Holly Street Studio design enables adaptive reuse of the historic U.S. Post Office in downtown Phoenix as both the student union and a USPS retail location. Photo Credit: Bill Timmerman

• **Anchor institutions**—Anchor institutions, especially universities, are powerful allies for catalytic walkable urban development.[56] Higher education can be sources of patient equity, land, place management, and prime customers for the place. Richard Brown of the University of Tennessee at Chattanooga (UTC) observes, "Urban universities in particular … have a vital role in becoming a real estate developer as part of the whole economic contribution to the communities where they sit … the name of the city is in the name of our university. Everything that we have done … has been a sense of knowing that we are a special place because we are in a special city. I recruit students very well because of the quality of this city and the renaissance that's going on downtown." As Chattanooga has prospered, so has UTC: In the past 30 years, the school has reduced their commuter student ratio, grown the total size of their student body, and improved graduation rates for women and minority students. Awareness of

this shared prosperity has motivated UTC to partner with River City Company on a range of initiatives, from restoring two-way traffic to major arterial streets passing through or beside the campus, to building and programming two new elementary schools in the downtown area.

In South Lake Union, Ada Healey, vice president of real estate for Vulcan Inc., recalls that the Center for Infectious Disease Research and the University of Washington School of Medicine took a chance on Vulcan as early tenants. In her words, "These organizations are used to working on cures for cancer … so when we rolled in and said here's our little plan for real estate, their context was 'This is actually not that daunting compared to what we're doing …' We made good relationships, it was good chemistry, and we had good value alignment, I would say the alignment of values is in some respects underestimated." The patience, risk tolerance, commitment to quality, and embrace of change are also thematically consistent with MIT's partnership with Forest City in University Park, demonstrating that these anchors are valuable even when they are not sources of capital.

5. In real estate, everything starts with the control of land and existing property.

In the case of catalytic developers, the WalkUP—whether established, emerging, or potential—that is the focus of development will probably be an in-fill or redevelopment location. This means there will be a land and property assemblage challenge. If the catalytic development is a green field site, which none of the six case studies here were, this challenge is substantially reduced. The major issue is that once existing land and property owners find out that a catalytic developer has plans for the WalkUP, the market value of the land becomes vastly inflated in the owner's mind. Hence, most catalytic developers prefer acquiring land and property quietly, generally using a number of independent brokerage firms.

Ultimately, catalytic developers have to play the land speculation game. The difference between those looking to profit from land and

those looking to be a part of the redeveloping walkable urban place is not always readily apparent from the outside, as the difference between land speculation and land assembly is the developer's intention. In our case studies and elsewhere, plain land speculation is characterized by lack of action to stabilize and secure existing structures, vacancy, nonpayment of taxes, and/or limited to no compliance with local ordinances by the land owner and tenants. It may be lightly camouflaged by extremely marginal, zero-maintenance land uses like surface parking lots or vacant buildings. Catalytic developers in established urban neighborhoods like Bedrock in downtown Detroit or 3CDC in Over-the-Rhine in Cincinnati prioritize stabilizing structures, proactively fight threats to security, and pay taxes (or in the case of MIT, a payment-in-lieu of). The public sector can play a critical role in minimizing land speculation through targeted code enforcement, public acquisition, or by conservatively zoning undeveloped parcels and establishing an expedited process to obtain new zoning.

6. Catalytic developments are implemented in many phases.

A critical distinction between catalytic development and cataclysmic development is the cumulative nature of the work. Even when guided by a master plan, our case studies are multi-phase endeavors that come together one building at a time, adapting and responding to unexpected opportunities and challenges as they arise. Catalytic developers build trust and set the stage for their own long-term success with a flexible, incremental strategy, rather than a megaproject. In University Park, Forest City hedged their bet. Jim Ratner advises that, "You need to know that even in the initial phase, you're in a good enough market so that the single first phase can survive on its own. It clearly gets better over time, but it has to be in a vibrant enough market to survive on its own."

Especially where dense, walkable, mixed-use development has been forgotten as a traditional urban form over the past three generations, successfully completing a "proof of concept" can help

the larger community understand the proposition and see fiscal and financial viability. Demonstrating good intentions and success early plants the seed to grow a "culture of abundance" from a "culture of scarcity." Both public and market confidence can build quickly from an early win. Ada Healey from Vulcan Real Estate describes it as "hit some singles first—get on base—and then demonstrate that you are going to do what you say. You honor your commitments, you start to build a track record … we want to do the right thing and have dealt with people in a straightforward manner. And I think ultimately, that makes a difference."

Successfully completing a 'proof of concept' can help the larger community understand the proposition and see fiscal and financial viability.

7. Catalytic developers have a commitment to quality development but achieving it can be difficult.

Across the board, our case study participants emphasized a desire to "raise the bar" (Melissa Dittmer, Bedrock in Detroit), "go above and beyond what the code requires" (Sharon Coleman, Vulcan in SLU), develop "great open space … maintained very, very well" (Jim Ratner, Forest City in Cambridge), and "design great buildings that are dictated not just by cost per square foot but also the long term aspirations for the institution and community" (Duke Reiter, ASU in Phoenix).

Catalytic developers have the capacity to target not just properties that are available, but also those that are problematic. In many cases, these may simply be vacant or abandoned parcels that are adjacent to a strategic building or an intersection. In Over-the-Rhine, 3CDC emphasized acquiring what are locally referred to as "pony kegs," convenience/liquor stores that sometimes served as gathering places for illegal commerce, ranging from single cigarette sales to drugs. This means that the redevelopment of many projects yields at least two positive outcomes; getting rid of a LULU (locally undesirable land use) and replacing it with a vital land use.

Quality should not be confused with exclusivity or luxury. In Chattanooga, the Lyndhurst Foundation partnered with the University of Tennessee to create the Urban Design Center, in part to provide capacity to River City Company and Chattanooga Neighborhood Enterprise (a sister nonprofit focused on affordable housing). Under the Kinsey and Corker mayoral administrations, the Design Center also received public funding, and supported the city's planning efforts. The founder and long-time director of the Urban Design Center, Stroud Watson, was a source for consulting, technical assistance, and visuals to "introduce new typologies. We had almost zero history of mixed use buildings...new types of housing, attached housing." In addition to diversifying the vision for land use, the center contributed design guidelines to RFPs and the waterfront to shape the definition Chattanooga's public realm as a walkable urban place.

Quality should not be confused with exclusivity or luxury.

Still, when it comes to design quality, catalytic development can have many unintended consequences. In catalytic developments that involve mostly new construction, Ada Healey of Vulcan Real Estate pointed out, "When everything is sort of new ... it's hard to create authenticity." Similarly, almost every developer noted that in hindsight a different product mix would have been more ideal, whether that was

	Detroit Rock Ventures		Chattanooga River City Co.		Over-the-Rhine 3CDC		South Lake Union Vulcan		Cambridge Forest City		Phoenix ASU	
	public	private	public	private	public	private	public	private	public	private	public	private
New Rail Transit	x	x			x		x	x			x	
Parks (capital)	x	x	x		x	x	x	x		x	x	
Financing		x	x	x	x	x		x		x	x	
Historic preservation tax credits	x				x		x		x			
Upzoning						x	x		x			

more housing in South Lake Union or more retail in University Park. The challenge of so-called "instant neighborhoods" is that they reflect the design sensibilities, politics, and especially the real estate market of a particular point in time, which may or may not stand the test of time.[57] Catalytic development is a fast start to what should be a never-ending process.

In particular, the large floor plates of the office buildings and biotechnology labs that are currently in demand across our case studies are a significant departure from historic American walkable urban form, and may bear an unfortunate resemblance to the "big box" format of drivable sub-urban retail. How will these buildings be used in 20 years? If demand for this type of walkable urban product is a short-term trend, what will it mean for cities that may have a surplus of these buildings in the future? Do these spaces have potential for adaptive reuse? These same questions need to be asked about the huge amount of space dedicated to parking cars in light of declining vehicle miles driven in walkable urban places and the potential of autonomous transportation, further reducing the need for parking.

8. The scale of the enterprise means that the risk and rewards are shared between the local government and the catalytic developer.

The local government tends to be a co-investor with the catalytic developer in building infrastructure (parks, transit, streets, parking, etc.) and planning (zoning, schools, etc.). In return, the catalytic developer is a long-term partner in the WalkUP, and the people and enterprises who populate it. Catalytic developers do not just generate economic activity or tax revenue: they can and must help solve the hardest local problems.

Some catalytic developers are formally constituted as private-public partnerships. The nonprofit catalytic developer case studies, the River City Company and 3CDC, were both formed as a result of a series of convenings about major local problems that the public sector

was unable to solve on its own. These nonprofit catalytic developers were capitalized by the private sector. In the case of the River City Company, elected officials from various jurisdictions serve on the board, while 3CDC's board is exclusively private. In South Lake Union, the private-public partnership is more like a three-legged stool, where the catalytic developer engages directly with the civic stakeholders of the neighborhood and the civil infrastructure of the city government. Vulcan Real Estate helped convene the South Lake Union Community Council, and provides some funding for planning studies, but only one Vulcan staff member holds a seat on the council's board, which must be won through a direct neighborhood election. The Seattle City Council recognized this partnership by formally adopting the South Lake Union Neighborhood Plan.

In the cases of both South Lake Union and University Park, where private developers held the land, the municipalities worked with the developers to create new zoning that allowed the builders to achieve their goals while incentivizing public interests. For example, the South Lake Union rezoning initiated a regional revenue-sharing mechanism (the Landscape, Conservation, and Local Infrastructure Program, or LCLIP), whereby development rights in rural parts of King County are purchased by Seattle developers, who then receive a density bonus from the city, while the city receives a portion of the future revenue collected on the urban development by the county. Had these projects not required rezoning, these public goals would not have been achieved. While collaborating with civic and civil leadership can be slow and messy at the best of times, the experience across our case studies suggests that it returns real value to the developer.

While collaborating with civic and civil leadership can be slow and messy at the best of times, the experience across our case studies suggests that it returns real value to the developer.

Across our case studies, catalytic developments have a tendency to mix traditional roles between the private and public sectors. For example, as part of the financialization of real estate the public sector is increasingly using modern financing tools like tax increment financing to borrow for development projects. Conversely, the private sector is increasingly directly contributing or self-taxing to fund high quality public infrastructure, including transit and public spaces. This mixing produces private-public partnerships that represent

new combinations of private characteristics (action-oriented, focused, fungible assets) and public characteristics (deliberative and participatory, spread thinly to cover all areas) but all sides come together united by the place. Examples of this include the South Lake Union Local Improvement District created to finance the streetcar and the Phoenix bond election to finance the ASU downtown campus. This mixing can bring unexpected people and approaches to redevelopment that apply new ideas and resources to the toughest urban problems. However, it can also cloud transparency, create or exacerbate exclusion or inequality, and expose communities to risk when actors are called upon to perform roles with limited experience. Both the place and the developer will benefit in the long term when there is a healthy balance between the public and private sector, even if significant time and discomfort, and potential neutral conveners, are needed in order to negotiate these roles.

The private sector directly subsidizes both the capital and operating costs of the South Lake Union Streetcar.
Photo Credit: Albert Pego/Shutterstock.com

9. Catalytic development alone will not build sustainable redevelopment.

A strong diversity of ideas, efforts, and shared risk is essential to the long-term success of a WalkUP but will only happen if developers

actively encourage the engagement of other actors. As RJ Wolney of Bedrock Detroit points out, the ultimate value of catalytic development is not the expenditures or products of the catalytic developer, but rather the deployment of capital at such a scale that it affords the city and region as a whole a "blanket of equity sponsorship and certainty for other sources of capital to come around us and to say, 'I'm more comfortable putting my capital at risk next to this group who has exhibited an ability and willingness to take on risk in a way that makes me more likely to do the same.'" This is the catalytic effect that makes the full impact of our case studies impossible to quantify. The major challenge in downtown Detroit at the present moment is to attract outside investors to downtown, not just the committed catalytic developers like Rock Ventures, the Illich family (Olympia Development, part of Little Caesar's Pizza), GM and the Ford family. In smaller markets like most of our case studies, "It is essential to foster an environment of access, opportunity, and stability with real market indicators and fair access to deals, especially for smaller developers," notes Eric Larson.

10. Catalytic developers must advocate for transit, bike, and pedestrian infrastructure.

A walkable urban place requires a dense street grid with small blocks and many pedestrian connections. A historic neighborhood like Over-the-Rhine, no matter how distressed, is a candidate for catalytic development because of the enduring value of the pre-automobile layout of narrow streets and frequent alleys. The "cataclysmic" developments of the urban renewal period were problematic in part because they removed streets and consolidated superblocks that reduced the walkability of an area. Catalytic developers today, because they are horizontally integrated, bring a unique capacity to restore street connectivity and establish pedestrian connections that a smaller scale developer might not have the capacity to do. In South Lake Union, Vulcan has densified the street grid by restoring or creating new pedestrian alleyways and by restoring public right of way throughout the neighborhood. (see map on page 34)

In Detroit, Rock Ventures principal Matt Cullen has served for many years as the chair of the board of the RiverFront Conservancy, which is responsible for the new world-class waterfront. These investments have played a pivotal role in redeveloping the downtown, attracting over 3 million visitors who spend $22 million annually and anchoring between $700 and $950 million in private development.[58] As a major landowner downtown, Rock Ventures has a tremendous stake in the quality of the pedestrian experience between buildings, and has invested in streetscaping improvements as well.[59]

Highways, rail transit, waterways, bus transit, and bike paths are all necessary to transport people and goods to the place—but mass transit is especially critical. When siting the ASU campus, Rich Stanley noted that "Phoenix is big but one of the things we said immediately was that it had to be on the light rail." The Phoenix light rail, which opened in December 2008, has already exceeded ridership projections for 2020 and delivered a farebox recovery ratio (40 percent) well above the U.S. national average for rail systems (33 percent).[60] Similarly, John Schoettler, head of real estate for Amazon, Vulcan's largest tenant/buyer, pointed out that, "We're not going to build more streets. We can't put more cars on the road. We have to provide other means for people to get there." For this reason, Vulcan organized other major landowners and employers in the South Lake Union area early on in their development process to create a Local Improvement District that levied additional property taxes from adjacent landowners to help fund construction of the South Lake Union streetcar line that connects the WalkUP to downtown Seattle.

Despite this optimism and investment from the land use side, streetcars appear to be more of a short-to-medium-term economic development tool for land development than a long-term mobility solution. Several of our case studies are located on recent new streetcar starts (Seattle, Cincinnati, and Detroit). The Bell Connector in Cincinnati and the QLine in Detroit have both fallen short of ridership projections, and ridership on the South Lake Union streetcar has declined since 2013. These streetcars are all characterized by short route length, frequent delays, and minimal connecting transit. In Seattle, even severe auto congestion in the area and short headways that are directly funded by SLU-area employers have not sustained

ridership. While catalytic developers understand multimodal options as essential to the viability and future resilience of a walkable urban place, truly effective mass transit requires connectivity at the regional scale, not just the place level. Streetcars in the case studies are a local, interim solution, largely funded by local property taxes and grants, hopefully preceding regional rail. Initial ridership is not the most important metric for measuring their success or failure, assuming the streetcar system leads to, or integrates with, a regional rail system.

11. Catalytic developers can do well while doing good when they invest in people and enterprises.

Walkable urban development in the contemporary American context involves confronting the systemic racial segregation and growing extreme income inequality that are woven into the geographies, economies, neighborhoods, and transportation systems of U.S. cities. The most successful catalytic developers do not shy away from the work of building just and inclusive places, in part because the locations most likely suitable for catalytic development are often the direct result of past unjust and exclusive policies and practices. As Kevin Finn, president of Strategies to End Homelessness in Cincinnati observed, "Redevelopment should be equally good across the spectrum for everybody and a lot of people want to view it as adversarial."

"Redevelopment should be equally good across the spectrum for everybody and a lot of people want to view it as adversarial." – Kevin Finn, president of Strategies to End Homelessness

Across our case studies, catalytic developers have contributed real estate expertise, funds/fundraising, political capital, and direct capacity to achieve social equity objectives. Doing so has helped these developers earn public trust, contribute measurably to their mission and legacy, and deliver materially better projects. For example, the quality of public education in urban areas is a critical issue that affects the short and long-term viability of new walkable urban development. In Chattanooga, River City Company partnered with

local government and UTC to build two new magnet public schools with early childhood centers. Similarly, almost immediately after opening their downtown Phoenix campus ASU launched a public charter prep school for K-12 students nearby.

Homelessness is another serious social problem that every catalytic developer confronts to some degree. In 2008 in Cincinnati, the city council and local homeless service providers recognized that they could be doing better and convened a working group to create the Homeless to Homes plan to improve services and reduce homelessness.[61] The plan called for restructuring Cincinnati's current inventory of shelter beds into five new and improved facilities. 3CDC reached out to Strategies to End Homelessness, the lead implementer of the plan, to help. Ultimately, 3CDC helped raise $42 million in private, local, state, and federal funds for construction and site location and built five new shelters. However, 3CDC's total impact on homelessness is subtler. As Kevin Finn observed, new city budget resources for homelessness prevention may have an even greater impact, and, "They never would have had that money to put towards homelessness prevention if there weren't so many more people paying taxes in a place like Over-the-Rhine." Every stakeholder in a community has a role in ensuring that the feedback loop to create this upward spiral actually gets started; if the initial economic development does not happen, there are no resources for needed social programs.

Affordability can be a challenge, however. For example, while 3CDC has created 175 units of affordable housing (with another 166 in the pipeline), for-sale condominiums housing wealthier neighbors now occupy the footprint of former apartment buildings that once accepted Section 8 vouchers. While 3CDC is not responsible for the tide of Section 8 sweeping in and out of OTR, it is indisputable that residents have been displaced. Even catalytic developments in post-industrial settings like University Park and South Lake Union face opposition from abutting residents who fear displacement, and the larger critique of spatializing economic inequality and segregation through gentrification still applies.

The city of Cambridge addressed this with Forest City at the very

beginning of the project, requiring a minimum of 150 affordable housing units as part of the rezoning. In South Lake Union, where the city did not implement an affordable housing strategy until 2016, the development is so far along that there are very few buildable lots remaining. For this reason, public and community advocates must organize an affordable housing strategy early in the catalytic development process. Rick Jacobus of Street Level Urban Impact Advisors in Oakland, Calif. advises, "Let go of the idea that the market is going to offer neighborhoods that are both highly desirable and economically diverse."[62] In walkable urban places, the recipe for social equity must include some combination of non-market affordable housing, improved access to job opportunities (ideally both locally and via transit), incubating local entrepreneurs, investment in public education, and high-quality public open space.

Affordable housing developed as part of University Park in Cambridge, MA
Photo Credit: Tracy Loh

Catalytic developers have added motivation to help their places thrive from a social equity perspective. They demonstrate their commitment to place-based investing by putting themselves and their employees where they are investing their capital. For example, Rock Ventures supports a relocation incentive program to encourage their workforce to live in or near downtown Detroit. Many Rock Ventures subsidiaries are tenants in Bedrock properties. On the ASU campus, nutrition students staff the Kitchen Café. Many catalytic developers take this approach on the retail side, investing in their tenants, and often preferring local businesses over national chains or franchises. For example, 3CDC offers a tiered lease structure to every restaurant and

bar tenant, consisting of $15-20/square foot or 6-7 percent of gross sales, whichever is higher. New tenants that need time to build a clientele get low rent, and successful tenants share profits with 3CDC.

12. Strong place management is crucial to building vibrant, healthy WalkUPs.

Experience from the earlier era of downtown redevelopment demonstrated that providing 24/7 management of the WalkUP is essential to its success. Such management helps fill the gap between the level of service the local jurisdiction provides and what the market for walkable urbanism demands. Management organizations often not only develop, maintain, and activate public spaces, but also support local business development, advocate for necessary infrastructure, and help maintain an ongoing focus on social equity. Place management organizations takes many forms;

- Main Street programs,[63]
- Government departments (i.e. downtown development authorities, municipal service districts, etc.),
- Neighborhood associations, generally focused on local-serving places, as opposed to WalkUPs,
- Place-based nonprofits (e.g. partnerships, holding company with 501c3 and 501c6 arm, events, foundations, etc.),
- Improvement Districts, which includes business improvement districts (BIDs), community improvement districts (CIDs), community benefit district, etc. (some can have multiple classifications).

This last category, generally referred to as BIDs, have tended to be the most successful in addressing the needs of WalkUPs and, therefore, catalytic developers. BIDs are nonprofit corporations formed through enabling state legislation that allows for property owners to organize and voluntarily impose a special assessment to finance the operations of the organization.

In Detroit, key stakeholders led by Rock Ventures, including Illich Holdings, M1 Rail, the Detroit Economic Growth Corporation, the city of Detroit, the Detroit Entertainment District Association, and the Downtown Detroit Partnership (DDP), engaged the Project for

Public Spaces to develop a placemaking strategy for downtown that considered both public spaces and Rock Ventures-owned street-level retail. The DDP, the improvement district that is (among other roles) the manager of Campus Martius and other public spaces, is a critical partner for coordinating and channeling private sector resources to implement placemaking in an agile way. Creating organizational structures and incentives that encourage creative cooperation between landowners, retailers, and public spaces in an inclusive and equitable way has been a challenge on some level in all of our study areas. In particular, in our study areas where single developers are dominant landowners, there is a tension between stewarding the broader placemaking and public interest vision and strategy and the real estate development and place management discipline and expertise needed to deliver results. While success in the latter is essential, it should not be confused with the former. BIDs are also not a substitute for civil leadership, or as David Ginsburg of Downtown Cincinnati Inc. put it, "There is a danger if we begin to confuse the tool for the mechanic."
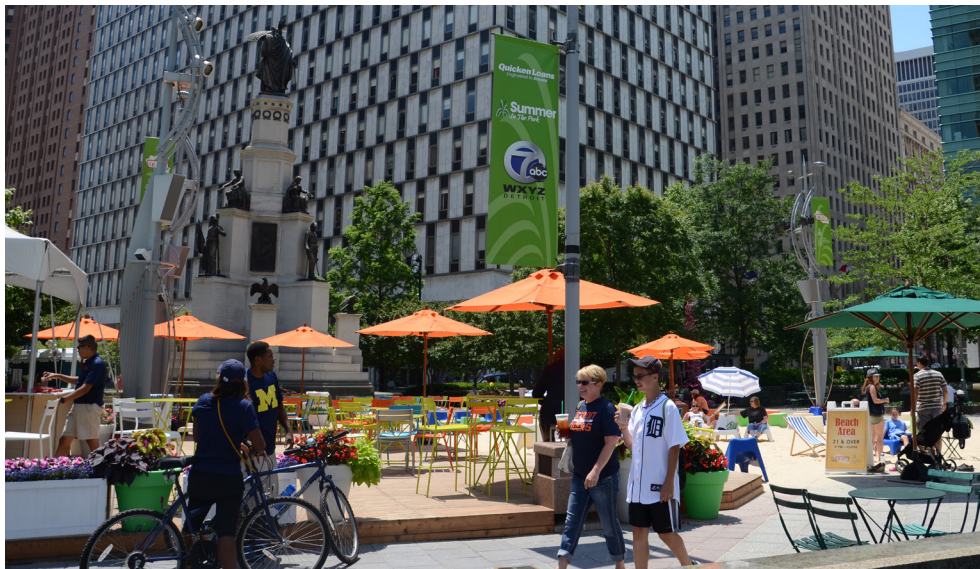
The Downtown Detroit Partnership manages Campus Martius. Photo Credit: Susan Montgomery / Shutterstock.com

Place management organizations are an evolving fourth level of governance in modern life, adding to the three traditional levels of government (federal, state and local). This scale and format of governance is rapidly growing, with over 2,500 of these place management organizations in North America. In our case studies, place management is a response to budget constraints at other levels of government and demand for a closer link between revenue,

governance, and place. Place management organizations have a unique capacity to link advocacy, policy, and service delivery while building consensus and promoting inclusion. For example, the Downtown Detroit Partnership manages the MoGo bikeshare program, which promotes biking between downtown and adjacent neighborhoods, Downtown Cincinnati Inc. employs a social service outreach professional to serve the homeless population downtown, and the Downtown Phoenix Partnership maintains a bustling calendar of events like wine tastings, children's storytime, arts and crafts workshops, group bike rides, touring shows, as well as hosting their own marquee events to activate downtown.

Catalytic development must have 24/7 placemaking and management to be successful.

VI. Conclusion

"Turning Around Downtown" posited a conventional model of downtown redevelopment that was a step-by-step process layering over time in a methodical manner. This model still works today when the preconditions for catalytic development are not in place. But as the case studies here demonstrate, the catalytic model can foster substantial economic development and social benefits for urban communities and their residents in a much shorter time frame. The three-legged stool of catalytic development—patient equity, integrated development, and employment—is what gives the catalytic development process its stability and speed. Only then does it become self-reinforcing, starting the upward spiral of value creation. Indeed, this self-reinforcement is the key to success. Catalytic development gets its name from chemistry, the "autocatalytic reaction," which means that at least one product from a chemical reaction is used in the subsequent reaction; a self-sustaining process. This is a virtuous cycle—a chain of events reinforcing themselves through a feedback loop.

That is, one action, say a new rental apartment building being built and occupied, is not just a good in and of itself. The existence of the new apartment building means there are more people on the sidewalks, increasing safety, boosting retail sales within walking distance, increased richness of the people watching, increased property values and taxes, which then attracts more development. This cycle is not a byproduct of drivable sub-urban development, where the building and occupancy of a development project is the only good—and one that is often coupled with negative consequences such as loss of open space, increased traffic

South Lake Union in 2002 and 2017, before and after redevelopment. Photo Credit: Courtesy Vulcan Real Estate

congestion, and the creation of low quality, sterile built environments.

Catalytic development isn't always successful, however. Attempts at catalytic development can fail when the developer falls short on the required capital, cannot build the trust and shared vision with civic leaders and the community necessary to obtain zoning and infrastructure, or compromises on quality, parks, or walkability. The consequences of this failure are felt by both the developer and the WalkUP. Concentrating land control and place-based capital in a troubled catalytic development can stall progress and effectively cause a new cycle of credit withholding that impacts the entire community for years, if not decades. For this reason, financing partnerships and land assemblies that include publicly owned parcels should be consciously and carefully structured, building in reversion clauses into contracts for lack of development progress. Similarly, the catalytic developer, with public zoning support, should employ a phased strategy that is agile and less vulnerable to volatility. Both the developer in urban design and place management and the local government in zoning have a role to play in risk reduction by building trust and consensus around flexible plans that respond to market demand.

In her 1969 book "The Economy of Cities," Jane Jacobs explored the origins and reasons for cities, with the central thesis being: "Our remote ancestors did not expand their economies much by simply doing more of what they had already been doing … they expanded their economies by adding new kinds of work. So do we." In these case studies of catalytic development, we see real estate interests, private employers, and the public sector adapting to the knowledge and experience economies by investing in walkable urban places. Still, catalytic development is not for every existing or emerging WalkUP, as the conventional approach still works fine in some areas. However, for those who can bring the three essential ingredients— patient capital, employment and integrated development—to the table, it promises remarkable financial, social, and environmental returns. Catalytic development allows for the "pushing of the fast-forward button" to achieve critical mass. This translates into improved economic development, increased social equity (if there are conscious affordable housing, workforce, and entrepreneurship programs in place) and is an important means of addressing climate change. With probably 20 to 30 years of pent-up demand for walkable urban development until it is satisfied, and hundreds of WalkUPs throughout the country that need expansion and creation, this new model of development comes along at a propitious time for the economy, society, and the environment.

Appendix A: Interviews

Detroit

Eric Larson – Chief Executive Officer, Downtown Detroit Partnership

Laura Trudeau – Managing Director, Detroit Program, Kresge Foundation (retired)

Dan Gilbert – Founder and Chairman, Rock Ventures LLC and Quicken Loans Inc.

Bill Emerson – Vice Chairman of Quicken Loans and Rock Holdings, Inc.

RJ Wolney – Vice President of Finance, Bedrock LLC

Josh McManus – Chief Operating Officer, Rock Ventures LLC (former)

Mark Wallace – President and Chief Executive Officer, Detroit RiverFront Conservancy

Steve Ogden – Vice President of Development, Quicken Loans

Melissa Ditmer – Vice President of Architecture and Design, Bedrock LLC

Jeff Cohen – Founder and Chief Executive Officer, Rock Companies LLC

Steve Rosenthal – Principal, Bedrock LLC (former) and Founder and President, Rock Companies LLC

Matt Cullen – Principal, Rock Ventures LLC and Chief Executive Officer, JACK Entertainment LLC

Deb Dansby – Chief Administrative Officer, Rock Ventures LLC (former)

Jim Ketai – Founder and Chief Executive Officer, Bedrock LLC

Chattanooga

Richard Brown – Executive Vice Chancellor of Finance and Administration, University of Tennessee at Chattanooga

Stroud Watson – Founder and Director, Urban Design Center (retired)

Sarah Morgan – President, Benwood Foundation

Kim White – President and Chief Executive Officer, River City Company

John Kinsey – President, Kinsey Probasco Hays, Mayor of Chattanooga (former)

Ken Hayes – Partner, Kinsey Probasco Hays and President, The Enterprise Center

Chris Crimmins – Vice President and Partner, Chattanooga Land Company

Jim Bowen – President and Vice President, River City Company (former, retired)

Ann Coulter – Executive Vice President, River City Company (former), Director, Chattanooga-Hamilton County Regional Planning Agency (former), Strategic Planning, The Enterprise Center

Seattle

John Schoettler – Vice President Global Real Estate and Facilities, Amazon.com

Sharon Coleman – Senior Director of Real Estate Development, Vulcan Inc.

Phil Fujii – Public Policy Specialist, Vulcan Inc. (former)

Tim Burgess – Member of the Seattle City Council, At-large Position 8 (former)

Mike McQuaid – Board President, South Lake Union Community Council (former)

Tim Ceis – Deputy Mayor, City of Seattle (former)

Lori Mason Curran – Real Estate Investment Strategy Director, Vulcan Inc.

Rob Arron – Senior Director of Real Estate Marketing and Leasing, Vulcan Inc.

Marshall Foster – Director, Office of the Waterfront, City of Seattle, Planning Director, City of Seattle (former)

Ada Healey – Vice President, Real Estate, Vulcan Inc.

Brennan Staley – Strategic Advisor, City of Seattle

Cincinnati

John Cranley – Mayor, City of Cincinnati

David Ginsburg – President and Chief Executive Officer, Downtown Cincinnati Inc.

Kevin Finn – President and Chief Executive Officer, Strategies to End Homelessness

Peg Moertl – Senior Vice President, Community Development Banking, PNC Bank and Director of Community Development and Planning, City of Cincinnati (former)

Kevin Donovan – Senior Vice President, Fifth Third Bank

Cincinnati (cont'd)

Brian Hodgett – Director, Ohio Government and Community Relations, Proctor and Gamble

Mark Mallory – Mayor, City of Cincinnati (former)

Charlie Luken – Mayor, City of Cincinnati (former)

Roxanne Qualls – Mayor, City of Cincinnati (former)

Jim Tarbell – Member, Cincinnati City Council (former) and Mr. Cincinnati, for life

Tim Maloney – President and Chief Executive Officer, Haile Foundation

Steve Leeper – President and Chief Executive Officer, Cincinnati Center City Development Corporation

Cambridge

Steve Marsh – Managing Director, MITIMCo

Phil Trussel – Director of Real Estate, Massachusetts Institute of Technology (retired)

Bob Healy – City Manager, City of Cambridge (retired)

Jim Ratner – Chairman of the Board, Forest City Realty Trust

Gayle Ferris – Chief Executive Officer and Chairman, Science and Technology Group, Forest City Enterprises (former)

Mike Farley – Senior Vice President, Forest City Realty Trust

Kathryn Brown – Vice President, Forest City Realty Trust

Peter Calkins – Senior Vice President, Forest City Realty Trust

Phoenix

Phil Gordon – Mayor, City of Phoenix (former)

Jeff Moloznik – Vice President of Development, RED Development

Thomas Williams – Assistant Dean and Chief of Staff, ASU Sandra Day O'Connor College of Law

Douglas Sylvester – Dean and Professor of Law, ASU Sandra Day O'Connor College of Law

Tim Sprague – Owner and Partner, Habitat Metro LLC

Chris Callahan – Dean, ASU Walter Cronkite School of Journalism and Mass Communication, and Vice Provost, Downtown Phoenix Campus

Wellington "Duke" Reiter – Senior Advisor to the President, Arizona State University

John Graham – President and Chief Executive Officer, Sunbelt Holdings

David Kreitor – President and Chief Executive Officer, Downtown Phoenix Inc, and Deputy City Manager and Economic Development Director, City of Phoenix (former)

Paul Blue – Director, Community and Economic Development Department, City of Phoenix (former) and Deputy City Manager, City of Phoenix (former)

David Roche – Director and Chief Executive Officer, Heard Museum

Rich Stanley – Senior Vice President and University Planner, Arizona State University

Endnotes

[1] Part of the reason for the failure of the urban redevelopment efforts was the bulk of the market did not want that form of living and working; the pent-up demand was for the brand new drivable suburbs being created on the metropolitan fringe that were segregated by income and race.

[2] Christopher B. Leinberger, "Turning Around Downtown: Twelve Steps to Revitalization" (Washington: Brookings Institution, 2005).

[3] Christopher B. Leinberger and Michael Rodriguez, "Foot Traffic Ahead 2016" (George Washington University Center for Real Estate and Urban Analysis, 2016).

[4] The case studies in this research did include a public sector catalytic developer, Arizona State University, but the majority of the case studies were private-sector led.

[5] www.costar.com

[6] Walkable urban places are dense, mixed use centers with tight-knit street networks and a diversity of retail destinations within a short distance. A typical walkable urban place is approximately 250 acres, transit-accessible, and is a regional destination for office or retail commerce (>340,000 sq. ft. of retail or 1.4 million sq. ft. of office space). Driveable sub-urban places are characterized by separated land uses, limited access roadways, and other auto infrastructure (including parking).

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[9] Belden Russonello Strategists LLC, "Americans' Views on Their Communities, Housing, and Transportation" (Washington: Urban Land Institute, 2013).

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[19] Anne Lorentzen and John Hansen Carsten (ed.), The City in the Experience Economy: Role and Transformation (New York: Routledge, 2012).

[20] Christopher B. Leinberger and Michael Rodriguez, "Foot Traffic Ahead."

[21] Ibid.

[22] Ibid.

[23] Federico Savini and Manuel B. Aalbers, "The De-Contextualisation of Land Use Planning Through Financialization: Urban Redevelopment in Milan," European Urban and Regional Studies 23(4)(2015): pp. 878 – 894.

[24] Ludovic Halbert and Katia Attuyer, "Introduction: The Financialization of Urban Production: Conditions, Mediations, and Transformations," Urban Studies 53(7)(2016): pp. 1347-1361.

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For more information on this report:
Jennifer Vey
Senior Fellow
Metropolitan Policy Program at Brookings
jvey@brookings.edu

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