This article was downloaded by: [University of Texas at Austin]
On: 12 March 2013, At: 09:54
Publisher: Routledge
Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK

Journal of Urbanism: International Research on Placemaking and Urban Sustainability
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rjou20

Sustainability and vulnerability: integrating equity into plans for central city redevelopment

Elizabeth J. Mueller [a] & Sarah Dooling [a]
[a] School of Architecture, University of Texas at Austin, USA
Version of record first published: 02 Dec 2011.

To cite this article: Elizabeth J. Mueller & Sarah Dooling (2011): Sustainability and vulnerability: integrating equity into plans for central city redevelopment, Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 4:3, 201-222

To link to this article: http://dx.doi.org/10.1080/17549175.2011.633346

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.tandfonline.com/page/terms-and-conditions

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae, and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand, or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Journal of Urbanism
Vol. 4, No. 3, November 2011, 201–222

Routledge
Taylor & Francis Group

Sustainability and vulnerability: integrating equity into plans for central city redevelopment

Elizabeth J. Mueller* and Sarah Dooling

School of Architecture, University of Texas at Austin, USA

Cities around the US are promoting redevelopment efforts in central city neighborhoods in order to foster more-sustainable development patterns. In this paper, we argue that such plans must be grounded in an assessment of the current conditions and existing populations in these neighborhoods. We propose a new way to frame plans for existing communities, using the concept of vulnerability to help us connect current conditions and future goals. Through a case study of the planning process for a transit-oriented redevelopment plan for a central neighborhood in Austin, Texas, we illustrate the difference between current approaches and an alternative approach.

Keywords: sustainability; vulnerability; gentrification; redevelopment

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Introduction

Calls to plan sustainable cities have emerged in response to the mounting evidence linking settlement patterns, human behavior and environmental impacts (Ewing *et al*. 2008, National Research Council 2009). Policy guides, development benchmarks and best practices recommended by professional planning and green building organizations seek to foster sustainable development by increasing density and promoting greater mixes of land uses to support higher transit use (and less driving) by residents (American Planning Association 2000, 2002, 2008, ICMA and Smart Growth Network 2002, 2003, US Green Building Council *et al*. 2009). Cities around the US are promoting redevelopment efforts in central city neighborhoods along core transit corridors, in order to achieve these goals. Mixed-use, transit-oriented development plans are also attractive to developers and to elected city officials for their economic benefits. More-compact urban growth, by increasing land values, provides opportunities for redevelopment that will enable landowners and real estate developers to realize higher returns on their property. For city officials, higher land values generate higher property tax revenues and, potentially, sales tax revenue from the retail and service components of mixed-use development.

Both environmental and economic rationales for redevelopment implicitly focus on the benefits brought by future residents of redeveloped neighborhoods. An alternative assessment of transit-oriented, mixed-use redevelopment plans focuses on the lives of current residents, and asks how the proposed redevelopment will impact existing households and environmental conditions while achieving broader goals. This question is especially salient since many of the neighborhoods targeted for dense, mixed-use (re)development are composed of predominantly minority, low-income households. Current settlement patterns are built upon past patterns of urban growth that excluded low-income and minority

*Corresponding author. Email: ejmueller@austin.utexas.edu

ISSN 1754-9175 print/ISSN 1754-9183 online
© 2011 Taylor & Francis
http://dx.doi.org/10.1080/17549175.2011.633346
http://www.tandfonline.com

neighborhoods, and were codified by plans and solidified through underwriting standards attached to federal mortgage insurance (Massey and Denton 1993, Jackson 1985). Low property values in central-core neighborhoods make these neighborhoods prime locations for redevelopment efforts within the new transit-oriented sustainability planning framework.

The challenge: bringing equity into sustainability planning

In this paper, we argue that sustainability plans currently framed around shaping the housing choices and travel behavior of future residents must be grounded in an assessment of the current conditions and existing populations in these neighborhoods. We propose a new way to frame plans for existing communities, using the concept of vulnerability to help us connect current conditions and future goals. Our proposed framework rests on two premises. First, we see ecological and social problems as interrelated, and thus inseparable as objects of study (Olpadwala and Goldsmith 1992, Harvey 1996). Second, we understand social-ecological problems as neither static nor discrete, but as part of larger dynamic systems that extend spatially beyond administrative planning units and also temporally to reflect historical origins. Through a case study of the planning process for a transit-oriented redevelopment plan for a central neighborhood in Austin, Texas, we illustrate the difference between current approaches and an alternative approach.

How should we think about the relationships between current conditions in central-core neighborhoods and the larger goals that animate sustainability plans? Even accepting these goals as primary, we must not only assess what is gained through change, but also what is lost or destroyed in the process and how losses relate to these same goals. In order to understand the relationships among social, economic and environmental aspects of existing neighborhoods, we must systematically and analytically assess current social, economic and ecological functioning to see how problems in one realm relate to problems in others, and also how local conditions relate to larger city and regional systems that have produced and continue to produce them.

Vulnerability as condition and process

Scholars interested in understanding how dramatic changes such as natural disasters affect communities have been studying the connection between social, economic and ecological conditions and vulnerability for years. Disaster research has conceptualized vulnerability as a set of conditions characterizing a group of people or a particular location as sensitive to stressors and perturbations, which typically include disasters and environmental hazards. Rather than indicating status, conditions of vulnerability are negatively related to the population's likelihood of recovering from disasters (see Timmerman 1981 as the classic work, Kates 1985). Liverman (1990) distinguishes between the biophysical conditions that contribute to vulnerability and the political, social, and economic conditions that also contribute to increased risk of exposure to harm (see Cutter 1996). Wisner *et al.* (1994) link increased levels of vulnerability to environmental hazards, lack of access to services (e.g. health services, credit, information) and lack of resources (e.g. income, assets, social support). Higher levels of vulnerability are associated with a reduced capacity to cope and recover from shocks. Other scholars refer to the community's ability to respond to impacts from disasters as adaptive capacity (Polsky *et al*. 2007) or coping strategies (Burton *et al*. 1993, Blaikie *et al*. 1994, Adger 1999).

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Poverty has emerged as a key factor in predicting conditions of vulnerability. Scholars describing and measuring urban vulnerability conclude that the risks to urban environmental hazards are highly complex phenomena, with overlapping risks associated with the household, workplace or neighborhood and with pollution risks from industrial contamination of air (Hardoy *et al*. 2001). Sanderson (2000) developed a model that analyzes the importance of household assets to reducing vulnerability and increasing likelihood of recovery from disasters. The model was the basis for programs promoting integration of poverty alleviation strategies with reduction of risks from urban environmental hazards.

The integration of social dimensions into conceptualizations and measures of vulnerability has prompted a shift from viewing vulnerability as a condition to conceptualizing it as a series of relationships that are created and maintained. Thus, social vulnerability is defined as: (1) the disruption of livelihoods and loss of security for communities (Adger 1999), and (2) the vulnerability people experience within their social, economic and political systems (Pelling 2003). Disaster planning researchers assess the impact natural disasters have on systemic functions, including individuals' biological and psychological functioning, local systems of social support, citywide infrastructure networks, and even national economies.

Geographers analyzing community responses to disasters conceptualize vulnerability as a dynamic condition, produced through historic interactions among economic, cultural and social processes (Hewitt 1997, Pelling 2003, Hogan and Marandola 2005, Andrey and Jones 2008). The vulnerability of social groups varies, based upon their cultural and economic status (or resources) and their occupation of hazardous areas (Pelling 2003). Environmental justice research emphasizes the impact of poverty on exposure to polluting industries and locally unwanted land uses (see Bullard 1990 as the classic work). Bullard (1990) and others have analyzed the relationship between the vulnerability of low-income communities of color and discriminatory practices among businesses and municipal governments that result in increased exposure of residents to environmental hazards.

This discussion has strong parallels in planning. Oden (2009) proposes that we frame the lack of attention to equity in discussions of urban sustainability using Walzer's concept of "complex inequality" (1983), where power in one realm of urban politics crosses over into another realm, resulting in the systematic exclusion of marginalized groups. In this way, local political agendas are set for planning that reflect the simultaneous interest of members of urban governing regimes in intensifying development and in setting the terms of development to favor development goals over other, social goals. In the same way, researchers have demonstrated that vulnerability to one type of harm often increased the likelihood of being vulnerable to other sources of harm. Findlay (2005) refers to "vulnerable spatialities", where people and places are made vulnerable and maintained in a state of vulnerability through a series of implemented political economic agendas. A parallel might be drawn to the process through which central city ghettoes were created where lack of local political representation of residents coincided with federally sanctioned redlining and local segregation of public housing (Sugrue 1996, Hirsch 1998, Freund 2007). Conceptualizing vulnerability as an ongoing process orients our attention to the historical roots of current problems, as well as to particular chains of influence within which vulnerability is produced (see Hogan and Marandola 2005).

Current discussions of vulnerability recall past research on the significance of social structure for low-income communities. The importance of mutual aid social networks is well documented (Stack 1974, Dominguez and Watkins 2003). However, the relationship between mutual aid networks and vulnerability is heavily context dependent.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Urban sociologists and social workers have documented the importance of social networks to low-income households' management of day-to-day tasks and access to services otherwise unaffordable to them (e.g. childcare) (Stack 1974, Menjivar 1997). Among low-income African-American and Latin-American mothers, primary social support networks include family, friends, husbands or boyfriends, and social services (Dominguez and Watkins 2003). While some research has documented increasing mistrust in economically disadvantaged communities and an overall decline in social capital (Coleman 1988, Putnam 2000, Ross *et al*. 2001), other work has concluded that social service organizations are important links within social support networks for low-income mothers (Dominguez and Watkins 2003). The mobilization of these supportive social networks for daily survival is different from networks created during disaster events, yet no less important (Solnit 2009). During disaster events, networks are temporarily disrupted and the resources necessary for daily living are either damaged, destroyed or very difficult to access. For low-income households, disruption of these relationships conveys even higher costs and burdens. Recent research documents how the disruption of social networks among low-income residents displaced following hurricane Katrina undermined residents' ability to recover (Mueller *et al*. 2009).

Research on the effects of urban renewal revealed the impact displacement had on existing communities (Gans 1962, Freid 1966, Hartman 1966). More recently, research on HOPE VI redevelopment efforts has focused primarily on delineating the magnitude of displacement and documenting changes in housing conditions experienced by residents after redevelopment (Popkin *et al*. 2004, 2005). With a few notable exceptions, relatively little recent work documented the impact of the loss of community on residents' lives (Fullilove 2004). Redevelopment plans espoused to be sustainable but which fail to preserve or incorporate housing for existing low-income renter households will likely result in the displacement of these households, and in the disruption of their essential networks and access to resources. Redevelopment plans that aim to achieve environmental sustainability without conveying the benefits to all current residents, including low-income renters, can contribute to the ongoing production of vulnerability.

We see parallels between disaster events, urban renewal histories and redevelopment plans in relation to the displacement of vulnerable populations. Extreme disaster events and related assessments of residents' social and ecological vulnerability can help planners think about processes of displacement from a different analytic perspective. The conceptual tools related to vulnerability, both as a condition and as a set of relationships produced, can assist planners in more holistically assessing the future impacts of proposed redevelopment plans. Understanding vulnerabilities embodied in particular places is a precondition for robust sustainability – assessment of equity issues becomes tangible and grounded in a particular context. The production of vulnerabilities also provides a framework for addressing equity over time by revealing how risk and exposure to harm (broadly defined) have historically been and continue to be created.

East Riverside: redevelopment and vulnerability

According to a recent EPA study of development patterns in the nation's 50 largest metropolitan areas, the share of all regional development taking place in central cities and older suburbs is rising (Thomas 2009). These trends are most dramatic in regions that are leaders in growth management policy. Yet the authors also find evidence that market trends are promoting similar changes in large cities lacking such policies, as residential construction in urban neighborhoods rises – a finding supported and celebrated by

building industry reports (ULI 2006). The economic downturn has exaggerated this trend, as the share of residential development comprised by single-family detached housing has fallen dramatically (EPA 2010). In this context, the momentum for implementing sustainable development "best practices" is growing.

To illustrate how the framing of such plans will matter, both to their impact on existing residents and to larger environmental goals, we turn next to a case study of a local planning process for a central neighborhood transected by a "core transit corridor" in Austin, Texas. This case was chosen for two primary reasons: (1) the setting and larger goals delineated for the process appear to typify those thought essential to sustainability, and (2) the community that is the focus of the plan arguably embodies many of the vulnerabilities described in the previous section. In addition, the process was amply funded and a national consulting firm was hired to develop the plan, so that any resulting weaknesses are unlikely to be due to lack of resources. The case promises to be a rich one for learning about the tensions between current conditions and future goals and for assessing the utility of viewing redevelopment plans through the lens of vulnerability. Over a six-month period, the research team followed the planning process, interviewing residents, local community leaders, and city planners, and attending public meetings. We also studied existing planning documents and analyzed demographic and administrative data in order to understand the context for the proposed transit corridor plan, and to document its evolution.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Background

The East Riverside Corridor Master Plan (ERCMP) is one of a series of neighborhood or district plans initiated by the City of Austin since the failure of the city's last attempt to adopt a comprehensive plan in the late 1980s. The city's previous comprehensive plan was adopted in 1979. Since then, the city has more than doubled in population and become increasingly ethnically diverse, achieving "majority minority" status around 2005. Growth has also brought increasingly visible signs of inequality, including steep increases in the degree of socio-economic spatial segregation (Robinson n. d.) and growing disparities in education levels and income (Brookings 2010). The defeat of "Austinplan" led the city to plan in a more fragmented way, creating plans for individual neighborhoods and for specific types of zones, including transit station areas, the central business district and core transit corridors. Over time, calls for a more comprehensive, citywide approach have increased, as the complexity of managing the many local plans and project-specific rules has risen, along with complaints about project-by-project dealmaking that is used to skirt the local plans adopted. The city is currently in the midst of a new comprehensive planning process. In the meantime, neighborhood and district plans continue to be developed.

During the 1990s, the city focused its efforts on shifting development from the west side of town to the east, to limit development over the ecologically sensitive karst aquifer that serves as a source of the city's drinking water. In addition, development downtown has been promoted under smart-growth and sustainable-development rationales (City of Austin 2009a). At the same time, a series of initiatives have focused on fostering redevelopment along "core transit corridors" and mixed-use, higher-intensity development near transit stations and along selected commercial corridors. These initiatives have focused on central zones of the city. The potential tension between redevelopment and low-income residents is illustrated in Figure 1, which overlays these planning areas on the location of older (Class C) apartment complexes – the city's largest de facto stock of affordable rental housing. Over 40% of these complexes are within a quarter-mile of core

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

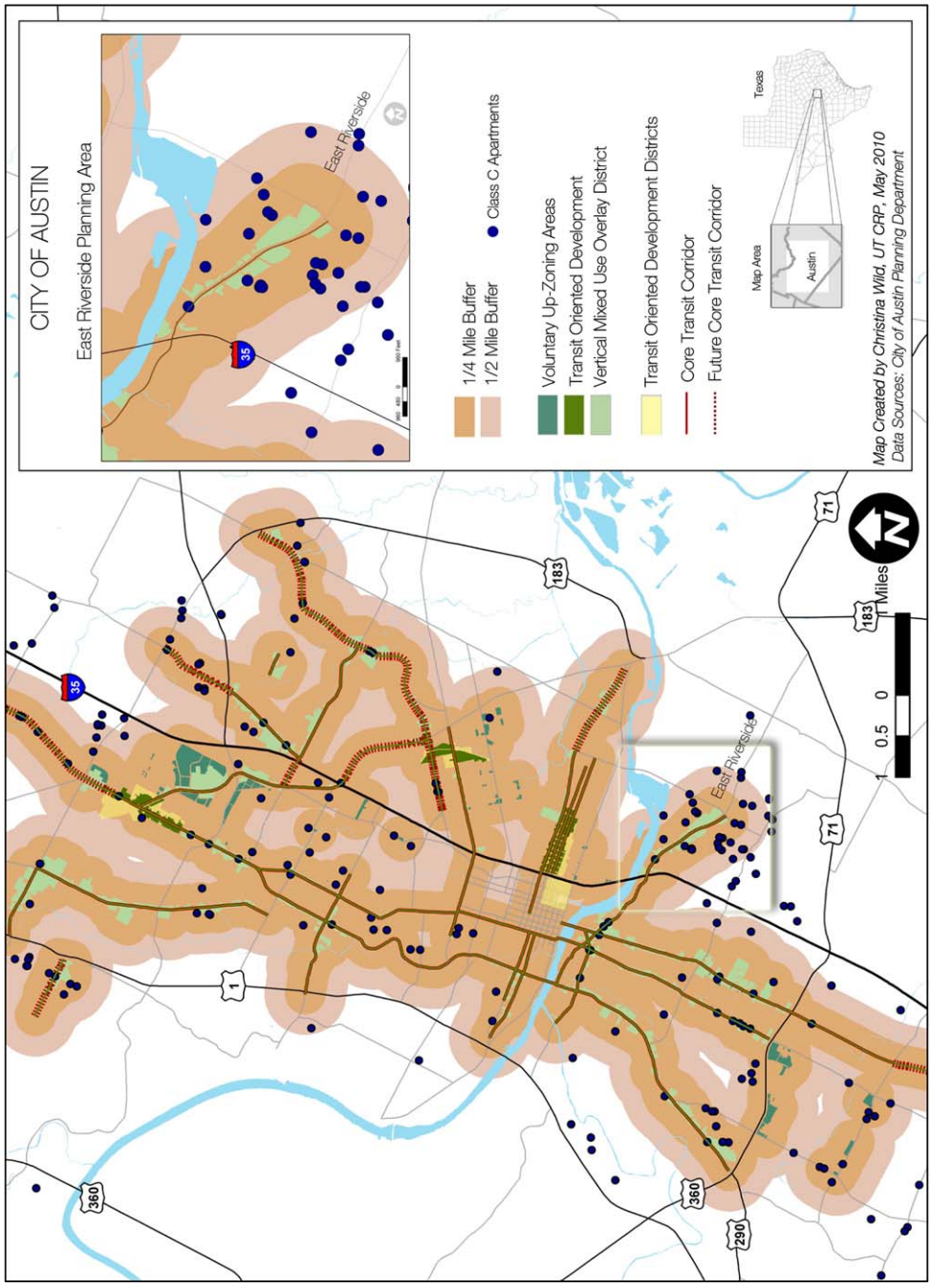
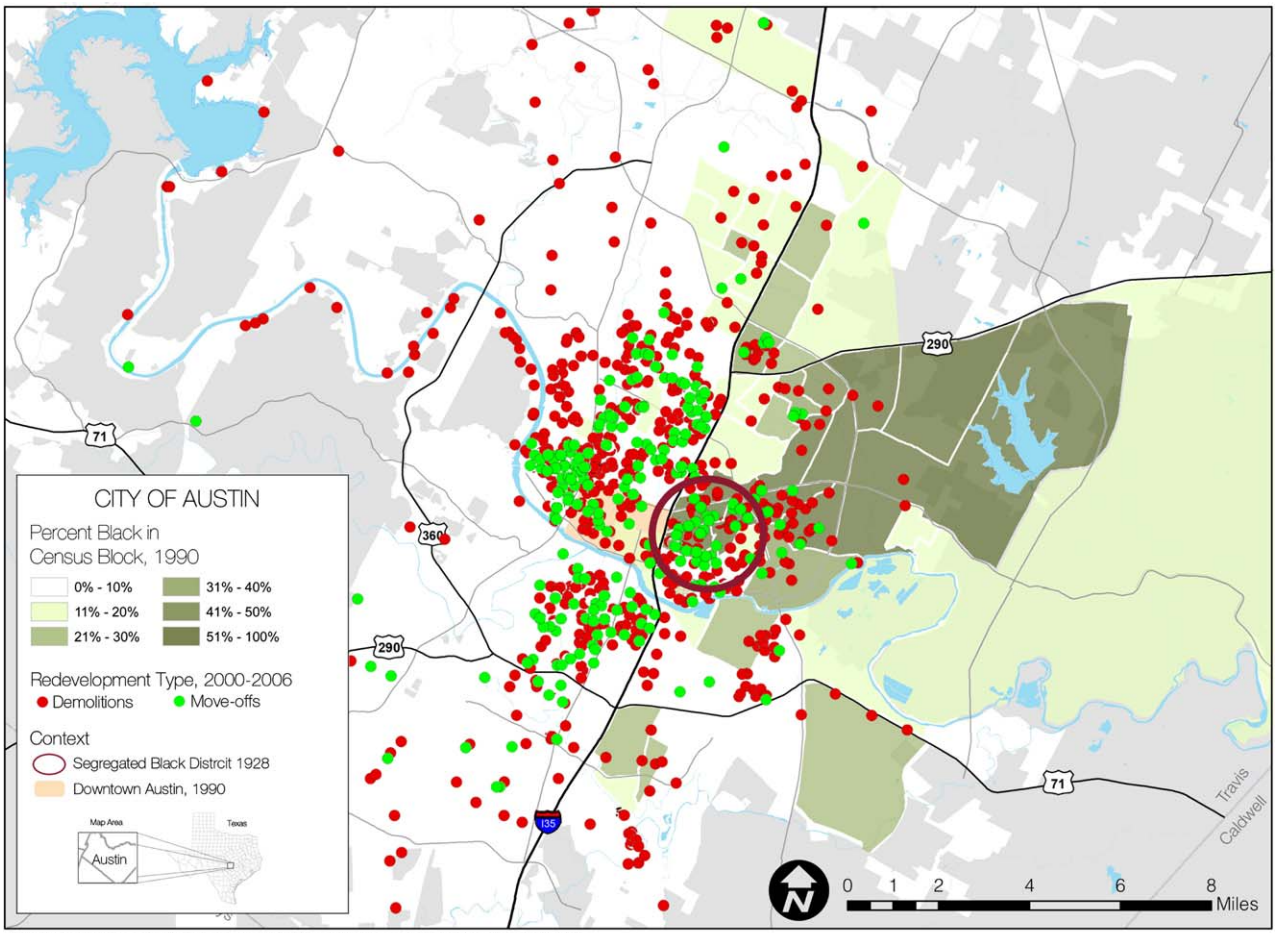


Figure 1. Existing Class C apartments and Austin planning initiatives fostering redevelopment.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013



Data Sources: City of Austin Planning and Development Department; US Census SF1 1990
Created by Christina Wild, University of Texas at Austin CRP Program, May 2010

Figure 2. African-American neighborhoods and current redevelopment patterns.

transit corridors, streets zoned for "vertical mixed use" zoning or that are part of transit station areas; over 76% are within half a mile of such areas. Redevelopment has already taken off in central core neighborhoods, as shown in Figure 2.

The historical context for this redevelopment is the pattern of racial and economic segregation set in motion through the city's 1928 comprehensive plan. In this plan, all public facilities for African-Americans were restricted to a neighborhood just east of the central business district, resulting in a pattern of segregation that persists. Figure 2 overlays current redevelopment patterns on a map showing the concentration of African-American population in 1990, just prior to this burst of redevelopment activity. The Latino community, while not formally limited to a similar zone, gradually formed a concentrated community just south of the "negro district", around Our Lady of Guadalupe Church and, to a lesser extent, just across the Colorado River to the south. These neighborhoods of modest homes, constructed largely in the 1920s and 1930s, illustrate the effects that lack of access to mortgage lending can have on housing conditions. One former city inspector attributed the extremely low assessed values of structures in these neighborhoods until the redevelopment boom, in part, to the fact that additions were done by the owners incrementally, without city permits. The East Riverside corridor runs along the edge of one historically low-income Latino neighborhood (Montopolis), and its large number of subsidized housing units is indicative of its socio-demographic position in the city.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

The push for light rail

The need to develop a plan for the East Riverside corridor emerged from previous discussions about strategies for the development of a light rail network for the city. The first leg in the network recently opened and terminates on the east side of the central business district. The development of a downtown plan presented an opportunity to discuss how to link this terminus to other destinations in the city (including downtown's major employers). Planners were asked to recommend routes between downtown and a list of destinations based on several criteria, and Riverside Drive (the main arterial in the East Riverside neighborhood) was the recommended route between downtown and the city's airport. It satisfied the criteria of connecting key destinations, maximizing ridership (including transit-dependent riders), offering strong potential for value capture through transit-oriented development and offering a wide roadway. City staff endorsed the recommendation, as did the city council when it was presented to them on 24 July 2008. A detailed analysis of the route was conducted by city staff, following criteria established by a working group of local civic leaders. Staff of the region's Metropolitan Planning Organization, CAMPO, reviewed the study (now called the Austin Urban Rail Corridors project) and presented it to the working group, which endorsed it. City staff began to conduct preliminary engineering and environmental studies of the proposed corridors, including Riverside Drive (City of Austin 2009d).

Planners also cite issues raised during the development of plans for two overlapping areas as motivations for development of a corridor plan.[1] While the plan does not detail these concerns, previous research and a review of these plans revealed that a key concern was the high concentration of rental housing in the zone closest to the highway (the area most attractive for redevelopment) (City of Austin 2006). A related concern was crime, which was assumed to be associated with these apartments. Local homeowners favored redevelopment that would increase the share of homeowners in the area (Ng *et al*. 2007). Little was known about the views of the numerous low-income immigrant renters living in the community.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Defining the focus of the plan, presentation of context

The corridor plan was framed around physical transformation, aligned with citywide transit goals. This emphasis is seen in the selection of the consultant for the project – a firm known for its expertise in focusing public discussion around identifying the "visual preferences" of residents for various scenarios (City of Austin 2008). Here is how the project was officially described to the city council:

> East Riverside Drive, located a few minutes from downtown Austin, is a primary route to and from the Austin-Bergstrom International Airport. Much of East Riverside Drive, in particular west of Pleasant Valley Road, consists of one-story strip retail centers with large areas of surface parking. It also has an extremely wide right-of-way (up to 120-feet) which could provide locations for future pedestrian, bicycle or transit friendly improvements. The corridor presents a significant opportunity to transform an underutilized commercial corridor into a more sustainable, mixed use, transit-oriented neighborhood through a focused corridor planning process. . .. The project will establish a vision, plan and implementation strategy for the corridor that results in the creation of a mixed-use, pedestrian and transit-supportive development pattern. The corridor plan will include: 1) A comprehensive public involvement process; 2) Land use and urban design recommendations to improve the character and function of the built environment; 3) Transportation analysis and recommendations for creating a multimodal, transit-supportive corridor and identification of improvements for better circulation or connectivity; and 4) Identification of infrastructure improvements that may be required to implement the plan (City of Austin 2007).

Over time, the physical area targeted by the plan expanded to encompass surrounding blocks, taking on a broader implicit focus, although the original goals, heavily focused on urban design and transit-oriented development, remained unchanged (City of Austin 2009d).

While the city council discussed the fact that the neighborhood is home to an extensive community of very-low-income immigrants with prospective consultant teams, the charge to the consultant did not include assessing this population's needs nor how these needs relate to the goals presented for the plan. The focus remained on the need to transform the area physically and – implicitly – to foster substantial redevelopment.

This framing of the plan had implications both for how existing conditions in the area were assessed and for how the boundaries of the study area were defined and interpreted. In both cases, the emphasis was on viewing the area as a physical space and in seeing current conditions in terms of their compatibility with the future vision for the corridor. For example, the physical definition of the space was interpreted literally: public facilities in and adjacent to the study area were listed in the plan (although the functions and uses of these facilities were not discussed), while other schools and social service agencies that were located further from the designated planning area but serving area residents were not included initially. In the first version of the plan (City of Austin 2009b), existing conditions were briefly described in an appendix, often through presentation of a single map, with little discussion and no analysis of the problems depicted. Further, conditions identified in the appendix were not linked to discussion either of the plan goals or of the potential impacts of the proposed plan on existing conditions. Lastly, there was no discussion of the characteristics or needs of existing residents living along the corridor, either in the existing conditions appendices or in the text of the plan.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Public participation process: physical form and visual preferences

The planning team took as its starting-point the need for the physical transformation of East Riverside Drive into a transit-oriented corridor, with density and urban design features meant to improve circulation and connectivity and support transit usage. The task of the team was to assess the implications of this transformation for local infrastructure, street design and residential design requirements. The focus of the public process was on defining the community's preferences for the physical design of various neighborhood elements and for their location – in particular, their views on prioritizing sites for redevelopment were sought. Given the dramatic scale of the changes sought for the corridor and the sensitive nature of prioritizing particular zones for redevelopment, the legitimacy and efficacy of such a process will be highly dependent on the participation of a representative group of the resident population. The plan describes a process in which a select group of early participants ("stakeholders") were extremely influential in setting the frame for later discussions. These early participants included "those who have been active in the planning or development process in the area, such as individuals who contributed to [plans for overlapping neighborhoods], business owners, landowners, developers, and other community interest groups". The consultant team met with this group specifically to learn about their views "relative to future potential changes in the area". The meetings were described as "identifying considerations that needed to be addressed while developing concepts for the Study Area, a list of existing conditions to help the Team better understand the area, and a series of properties within the Study Area with the most likelihood of changing in the near future". The focus of these discussions skewed heavily toward defining the parameters for redevelopment – something likely of material interest to the participating developers and landowners. In addition to this "stakeholders" group, a group was formed to represent the technical knowledge and skills of city staff familiar with the area. The technical group discussed traffic and circulation, infrastructure improvements, potential transit connections and design guidelines (City of Austin 2009b, p. B2).

The broader public entered the process when a "visioning workshop" was held in September 2008. (An earlier, beta-test version was held for the stakeholder group.) According to the final report, "nearly 150" people participated in the two workshops. Workshop participants completed a Visual Preference Survey and Community Questionnaire and participated in a Vision Translation Workshop. (An additional 450 completed the questionnaire online.) The Visual Preference Survey was designed to evaluate how participants valued various elements of the current community and assessed alternatives. While it is apparently focused on visual appeal, the images presented are multilayered. Images implicitly ask participants to choose between residential populations when comparing present and proposed housing types. The 11 elements reviewed included streets, pedestrian realm, commercial, mixed-use and residential development, parking, signage, parks/plazas/open space, placemaking, sustainability, and mobility. Images were scored on a scale of –10 to +10, means and standard deviations were generated and the images scoring the highest were the basis for recommendations in the plan. Not surprisingly, given the cost-free choice of selecting the most visually appealing images, the end result was an endorsement of the initial charge for the plan: "an area that welcomes and encourages pedestrian activity by providing a broad range of commercial retail and residential uses, high quality streetscapes and a robust transit system" (City of Austin 2009b, p. B4).

The final element of the public process was the "vision translation workshop". In this exercise, the preferences found in the previous stage were translated into specific

recommendations for the corridor. In particular, participants' views were sought on where positive images should be located and where redevelopment should be focused – the latter based on negative images presented and ranked poorly in the previous phase. Based on this analysis, a map was developed that showed the highest priority for redevelopment falling on the western zone of the corridor, the location of the highest concentration of rental housing. In addition, a map of "public perceptions of existing conditions" was developed, showing participants' views of crime hot spots, dangerous intersections, speeding zones, flood-prone areas and viewsheds to protect. Comparing the two maps, we find no correlation between any of the negative features on the existing-conditions map (including crime hot spots) and redevelopment priorities.

Following completion of the public process, the consulting team and the city technical team developed more detailed plan elements through a design charette. Before presentation of the first draft plan, an additional "did we get it right?" meeting was held where findings were presented. During the workshops, participants were asked to complete a "demographic, market and policy questionnaire". There is no discussion of this information in the draft report released, nor are these data used to highlight particular concerns of varied stakeholder groups in the analysis. However, it is clear from these data that important segments of the residential community – those most likely to be affected by proposed changes – were simply not present. It is also clear that particular interest groups strongly invested in either development or the expansion of public transit were a dominant organized presence in the process.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Draft plan produced; community reaction provokes revision but not reanalysis

The first draft of the report was released publicly in June of 2009. The plan (in English) was placed in public libraries and posted online for comment. It coincided with discussions of a proposed redevelopment project in the westernmost stretch of the corridor that raised concerns among some groups in the community. The project (since approved) will result in the demolition of approximately 500 units of low-income (but unsubsidized) multi-family housing. Affordable housing advocates began to discuss the potential loss of low-cost housing along the entire corridor that would result from the plan. They also began discussing the plan with the area's low-income immigrant residents and subsequently met with city staff to discuss their concerns. By the time staff presented the draft plan to the neighborhood planning committee of the planning commission in the fall, community leaders from a portion of the corridor whose own neighborhood planning area overlapped with the corridor planning area had also mobilized. They were concerned that the detailed description of how developers might achieve higher densities at key intersections was not paralleled by a comparable level of specificity regarding the community benefits that would be provided in return. These two themes – the lack of attention to probable displacement of current low-income residents and how community benefits would be defined and balanced against developer entitlements – became the focal points of public discussions of the draft plan. (A coalition of transit advocates, who were active participants in the formation of the plan, became engaged later, when they began to fear that adoption of the plan would be delayed by these discussions.)

The flaws in the overall process were highlighted in these discussions – the lack of representation of low-income Spanish-speaking renters being foremost. After a group of low-income renters, all immigrant women, spoke about their concerns at a committee meeting, planning commissioners directed staff to present the proposed plan to the community in Spanish. A subsequent meeting took place at a local elementary school,

organized by the immigrant women with the help of school administrators. They canvassed vendors at the weekly flea market, and recruited neighbors to attend. Their participation, along with that of housing advocates (including the authors), resulted in substantial additions to the plan. Neighborhood demographics and more detailed information about affordable housing, local schools and other public facilities serving area residents were included in the revised plan, thus providing a context for discussions of community benefits. While the presence of residents asking to be allowed to stay in their neighborhood was a tangible challenge to the dominant narrative about the neighborhood as a crime-ridden neighborhood in need of transformation, their participation in the planning process did not change the substantive discussion in the revised plan. For example, the maps created through the vision translation process described earlier, in which zones prioritized for redevelopment overlapped precisely with areas defined as important by the women immigrants, were still presented as valid. On the other hand, the description of detailed development entitlements was removed. Discussion both of entitlements (e.g. increased height and density for developers) and of compensatory community benefits was left to the next stage, when specific procedures and rules changes would be outlined in a regulatory plan. The final plan was approved by the planning commission in February 2010 and adopted by the city council in March.

In sum, while the planning process engaged many people – including residents and other community leaders and organizations – and resulted in a more complete presentation of local conditions and problems in the plan, the plan did not deviate from its initial charge. The need for redevelopment is implicitly presented as the solution to existing conditions, still without explicit analysis of these problems. The initial framing of the plan, shaped by city staff and leaders (through the technical advisory group) and developers (through inclusion of those active in past processes or area development) resulted in a document that provided support for the redevelopment goals that were laid out at the start of the process. The addition of information about the existing community did not result in analysis of existing social conditions nor their integration into the goals of the plan.

Assessing vulnerability in East Riverside: an alternative framework for planning

The ERCMP process was framed around the desired future outcome of the plan, but was not grounded in the current social and environmental context. In this section, we discuss an alternative approach to planning that explicitly connects current conditions and vulnerabilities to future goals. Absent attention to the needs – both physical and social – of existing community residents, the current wave of sustainability plans in US cities has the potential to spur both displacement of low-income residents and environmental consequences that seriously undermine their larger environmental goals.

The starting point for an integrated plan is an understanding of current conditions and their production. This means looking for existing vulnerabilities by examining the social character of the community of residents and businesses, and the physical components of the environment. It means looking at how these current conditions evolved historically and their ongoing production by systems or processes that extend beyond the spatially delineated boundaries of the specific neighborhood itself. In the discussion that follows, we propose a conceptual framework for initiating an alternative approach.

Public participation has a clear role in the identification of current community conditions. Incorporating residents' assessments of the ways in which they are vulnerable to existing conditions, as well as how they might be made more or less vulnerable by the proposed changes, would become a key part of the public discussion. Debate over

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

assessments of how vulnerability is currently produced, and how future changes might ameliorate or even reverse this, would be a critical component of the public discussion. This debate, grounded in empirical analyses, would resist the exclusion of certain groups of people (for example, Spanish-speaking immigrants).

Current conditions and vulnerabilities

Applying our alternative framework to the East Riverside corridor, we begin by describing the area's current residents and identifying groups that we would expect to be highly vulnerable to neighborhood change. Indicators that have proven useful to disaster researchers trying to predict vulnerability following natural disasters include poverty, low household income, unstable employment, renter status, lack of household assets, lack of access to services (including schools and other community institutions), and weak social networks. To this list, given the Austin context, we add linguistic isolation and legal status.

Based on a preliminary assessment of available data, we found indicators of both vulnerabilities and strengths in the existing East Riverside community. While the corridor butts up against homeowner neighborhoods, it is overwhelmingly low-income and populated by renters (85% of residents of zip code 78741 in 2000). In 2008, nearly a third of households had incomes below $15,000; 47% fell below $25,000 per year (City of Austin 2009c, p. A10). While some of these households may represent university students, demographic trends suggest that the student population is a minority and continues to shrink.

A limited set of interviews carried out with residents and community leaders including school principals, ministers, and flea market vendors revealed that the neighborhood is also home to a large community of Latino immigrants, mostly families, with extremely low annual incomes. Many men work in various construction-related occupations, some as day laborers. Census data do not fully account for the presence of undocumented immigrant households. For example, according to the 2000 US Census, non-family households were overrepresented in the neighborhood, ranging from close to 60% to over 68% of all households in area census tracts. Similarly, only 11% of households were considered "linguistically isolated". Households with children formed only between 11.4% and 25.5%. Administrative data give us a fuller and distinctly different picture: the seven local elementary schools serving this neighborhood educate very low-income, Hispanic students, many of whom qualify for bilingual services (see Table 1). The 78741 zip code had the fourth-highest number of births in the city in 2008 (Harner 2009).

East Riverside residents are also more likely to be transit-dependent relative to other city neighborhoods. Two of the most heavily travelled bus lines in the city (#7 and #20) pass through the area. Almost three times as many local residents commuted to work by bus as did citywide in 2000 (11% vs. 4%). This is especially pertinent given the centrality of transit as a motivation for the corridor plan. A disproportionate share of residents also carpool (19% vs. 14% citywide) (US Census 2000). Based on our interviews, we conclude that low-income families are especially transit-dependent. The poor streetscape and lack of safe crossings produce high levels of accidents involving pedestrians (City of Austin 2010).

Low-income households rely on a handful of services located in or near the neighborhood. These include a city health clinic, several private organizations assisting women with domestic violence, various youth programs, food assistance (WIC) and several programs offering services to people with disabilities (City of Austin 2010). Clinics and other social services would be disconnected from their client base if redevelopment

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Table 1. Elementary schools serving the East Riverside corridor, demographics, 2008.

Elementary school (state accountability rating)	Hispanic student population	Economically disadvantaged student population	Limited English proficiency population	Mobility rate 2006–07
Brooke (Recognized 2008)	87%	93%	29%	23.9%
Allison Elementary (Academically Acceptable)	90%	95%	38%	30.0%
Linder (Academically Acceptable)	90%	95%	60%	36.7%
Metz (Recognized 2008)	97%	93%	54%	25.3%
Sanchez (Academically Acceptable)	94%	92%	62%	30.8%
Baty (Del Valle ISD)	80%	90%	31%	30.0%
Travis Heights (Unacceptable 2008)	68%	77%	24%	21.4%
District	57%	60%	24%	25.5%

Source: Demographic data and campus mobility rates are from the Texas Education Agency, Academic Excellence Indicator System, 2007–08 Campus Profile. Campus mobility rates are for 2006–07 (same source).

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

resulted in the displacement of low-income households. In addition, many area businesses cater to the immigrant community. A visual inspection of businesses located along East Riverside Drive alone found four Latino food stores, eight Mexican restaurants and taco shops (not including chains), four social clubs or nightclubs, two Spanish-language churches, two bus services to Mexico, six beauty shops, and other miscellaneous businesses catering to Latinos (Pusch 2009). Many small businesses, including a large weekend flea market whose vendors are also low-income Latinos, would be adversely affected by redevelopment outcomes that failed to preserve retail space at affordable rents and failed to provide a space zoned for street vendors.

The East Riverside corridor includes ecological vulnerabilities that are tied to both its status as a low-income community and its proximity to a dammed river and several creeks. The ERCMP area straddles two watersheds. Due to the large amounts of impervious surface associated with the historical concentration of apartment complexes and their large surface parking lots, water quality in the watershed within which most of the ERCMP will be located is rated as poor by the City of Austin Watershed Protection and Development Review Agency (WPDRA). Due to the highly erosive quality of existing soils, combined with insufficient riparian buffers and development directly in the riparian zone, sedimentation is a constant and serious problem. Habitat quality is also ranked poor. It is estimated that upgrading localized drainage systems within the Country Club Creek watershed will cost $13.3 million, targeting 21 separate systems (City of Austin Watershed Protection and Development Review Agency n. d.). The Austin Water Utility (AWU) concluded that existing water infrastructure (40–60 years old) is nearing the end of its effective utility (City of Austin 2010). In fact, the storm drainage system in the area is not even fully mapped. Within the proposed transit corridor there are no existing parks or open spaces. Degraded watershed functioning and the lack of parks and open spaces both contribute to the ecological vulnerability of the neighborhood.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Strengths

These data also reveal ways that the existing community serves its most vulnerable members. These represent strengths of the community that should be considered valuable. Despite the portrayal of the community as a "ghetto" in public discussions of the plan, many residents we met expressed a strong desire to stay in the community. They demonstrated their desire to remain through repeated moves within the community, as they were forced to vacate buildings targeted for demolition as part of the first wave of redevelopment. While they are certainly aware of and troubled by local crime (and have much to say about the lax property management that allowed drug dealers to operate out of apartments in buildings awaiting demolition), this fear was outweighed by their desire to remain near community institutions and social networks they valued and feared they would not find in other areas they could afford. Review of school data was especially illuminating: several local elementary schools primarily served students living in Riverside neighborhood apartments. Two schools ranked high under the state's accountability system, despite serving a very poor, highly mobile population (see Table 1). In fact, current residents we interviewed tried desperately to remain within school district boundaries when forced to move so they could continue to send their children to these schools. Local principals who had succeeded in building strong supports for these children were fighting to maintain staff and resources as enrollments fell following demolition of apartment complexes.

The hardest dimension of vulnerability to assess is the strength of social networks. We found that low-income Latino residents feel a strong sense of community within the neighborhood and rely on social networks, including friends and family, to manage their daily lives. Both their vulnerability and their shared sense of community are expressed by a local resident who learned of the draft plan and spoke at a public meeting:

> I have lived in Austin, Texas, in the Riverside neighborhood, for 11 years. We haven't had the opportunity to participate in this project and we have listened to what they are thinking of doing in the area. We are in favor of a plan that converts the zone into a more beautiful area, more pleasant for pedestrians, and with greater access to public transportation – we just ask that these changes don't have the effect of raising our rents and, in effect, forcing us to leave the community that we have spent years building. In this area we have found a way of life that meets our needs, that we can't find elsewhere. We hope that you will consider our needs and that your projects won't affect our families very much (statement at neighborhood planning subcommittee meeting, 5 September 2009, translation by author).

The production of current conditions

The processes that have led to the concentration of low-income Latinos in this area are complex. However, it is possible to describe the factors leading to the concentration of apartments and subsidized housing in this zone and the ways that ecological vulnerabilities have been shaped by the same dynamics. Austin's tremendous population growth during the 1970s and 1980s was accompanied by a shift from small-scale rental housing to larger, multi-unit buildings. The 1979 Austin Comprehensive Plan emphasizes protecting older city neighborhoods from change due to growth pressures.[2] Multi-family (MF) residential areas were designated; however, there is no reference to MF housing in any of the housing goals in the 1979 plan. The lack of MF-zoned land has been a chronic complaint of developers. According to the city demographer, 85% of MF projects put forward between 1 January 1992 and 1 January 1997 required a zoning variance – and 80% were granted their variance (R. Robinson, personal communication, 11 October 2007).

However, the pattern of concentration that resulted suggests that developers most often sought to site developments away from established single-family neighborhoods, thus avoiding likely opposition in the process of obtaining a zoning variance.

At the same time, the University of Texas was under increasing pressure to provide more housing for its students. By 1964, the University was housing only 12% of its student population. UT enrolled 27,345 students in 1967-68 and enrollment would reach close to 50,000 by 2000 (University of Texas 2007). In 1969, the University began free shuttle-bus service to enable students living in neighborhoods where apartments were concentrated to get to campus. Significant concentrations of student housing emerged along shuttle-bus routes, including East Riverside.

By 2007, the city's apartment stock had grown considerably, but was still concentrated in large complexes in neighborhoods with few single-family residences (Austin Investor Interests 2007). The East Riverside neighborhood is one such neighborhood. The neighborhood's disproportionate share of subsidized affordable housing is also part of a larger citywide pattern, through which areas with low land values (shaped by the forces described above) and high poverty rates are the favored locations for MF housing.

In addition, the overconcentration of rental complexes in East Riverside is intimately connected to flooding and other environmental problems in the area. At the city level, Lee (2005) documented a 184% increase in residential development in floodplains between 1990 and 2000 (from 2,740 to 7,792 acres). During this same time period, the portion of low-income households living in floodplains rose from 31.3% to 43.7% (Lee 2005, Table 8, p. 51). The rate of increase of population in floodplains was highest for low-income households (83.4% vs. 27.2% for the city overall). The 193% increase in floodplain acreage occupied by mobile homes was especially dramatic. By 2000, the share of mobile homes located in floodplains had risen from 7.5% to 12.9% (Lee 2005, Table 5, p. 45). These patterns raise concerns that displacement of low-income populations may result in their relocation to environmentally sensitive areas elsewhere in Austin.

Research on the intersections between poverty and environmental degradation, including access to ecosystem services, has largely focused on developing countries involved in resource extraction. More recently, urban political ecologists have focused on the unequal distribution of ecosystems services – including urban green spaces – in relation to income levels and race (Heynen *et al*. 2006). We do not yet know where low-income households in East Riverside will live in the future. However, the ongoing movement of low-income households to homes in floodplains is troubling in this context.

Implications: redefining sustainability planning for East Riverside

Under our alternative framework, the mandate to planners would be to reconcile the city's larger vision for a transit system and desire for a transit-oriented, denser, mixed-use neighborhood as part of this larger vision with the community's existing strengths and vulnerabilities. The first step in any planning process, after identification of broader community goals through the political process, would be to perform an assessment of current vulnerabilities and their production, and also of the strengths of the community, particularly those created through community investment, including the valuable community networks built by residents. This alternative approach situates analyses of current conditions and residents at the center of the first stage of planning and defines a clear role for resident participation in the planning process. Community residents are uniquely positioned to help planners understand what works and what doesn't in their community.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

The current plan is strongly focused on achieving a future vision for the neighborhood that is based on citywide transportation goals as well as the desire of city officials and local developers to stimulate profitable development along the corridor. The plan appears to be imposed on a blank slate. Here is the vision for a proposed transit hub, to be located in the part of the corridor with the greatest concentration of aging, affordable apartments housing a largely immigrant, extremely low-income population:

> The vision for the lakeshore center hub is to create a green, sustainable, and livable mixed-use area that benefits from and complements the area's proximity to existing open space around Lady Bird Lake and high quality transit along East Riverside Drive. This area is already experiencing new development, which can serve as a springboard for the Lakeshore Center Hub. The Hub could be based on its identity as an access point to Lady Bird Lake and the associated park and trail system, and from a potential new Farmer's Market that would ideally be located across from the transit station (City of Austin 2009b, p. 37).

A vision for current neighborhood residents and the city as a whole

The task for planners would be to plan to integrate new residents and physical features into the existing community in such a way as to improve conditions in the community for existing as well as future residents. By framing the current concentration of low-income renters and environmental problems as features of larger systems, the mandate for planners shifts from focusing on improving conditions for future residents to trying to prevent significant displacement, since this is now understood to have negative environmental consequences and social costs that may outweigh the citywide benefit of neighborhood improvements. Similarly, understanding the strengths of the existing community, including the high population of transit-dependent households, the local schools that perform well for low-income immigrant children, and the social services and businesses that serve this community, would again place a premium on retaining community residents in order not to undermine community assets.

Public costs and benefits in broader context

Based on the priorities defined in the plan and by the city council, the largest anticipated public benefits appear to be an increase in property tax revenues and, to a lesser extent, in sales tax revenues the city will receive as a result of potential mixed-use redevelopment along the transit corridor. Quality of life and other environmental benefits will accrue to future residents and are framed in the economic terms of amenities, thus implying benefits through increased property values and taxes generated. In contrast, benefits to be generated by the proposed rail line and associated development appear aimed at citywide benefits through increased transit ridership and improved air quality to be realized through development of a larger system and extension of land use changes citywide. Their relation to local benefits is less clear, particularly since the use of transit by future residents in the short term is unknown. Overall, most of the benefits to city coffers depend on increases in land value, and on subsequent changes in the resident population. Costs are those associated with new and upgraded infrastructure and, eventually, with the construction of the rail line. Social costs, including affordable housing, are all to be paid for through trade-offs with developers over density or other entitlements. They are defined as outside the realm of public spending since they are not seen as providing public benefits to the plan area – only costs.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Accounting for costs of displacement, benefits of inclusion

Taking the existing community into account would change the calculation of public costs and benefits. Benefits would incorporate the value of retaining and building on existing strengths of the community. They would include preventing or minimizing displacement likely to result in population growth in floodplains and in high mobility at local schools. While the increased intensity of development would produce the same type of fiscal benefits outlined above, the amount of these benefits would likely be less, since redevelopment would be more likely to minimize demolition of existing structures and would require some value capture in order to subsidize housing affordable to current residents. Costs would include public outlays associated with displacement, such as floodplain settlement affecting water quality, periodic public buy-outs of property, and public health costs due to, for example, reduced clinic access. Similarly, displacement of residents to neighborhoods lacking public transit options would bring a cost in terms of lost ridership, both at the neighborhood and regional scales. Of course, displacement has tremendous costs to households, including reduced access to work, social services, social networks and community amenities.

In sum, the current approach to planning the proposed transit corridor appears to be based primarily on the shared interests of developers in increasing the intensity of development and city officials wanting to increase the local tax base. While city planners are leveraging the language of sustainability to frame the ERCMP, and include some of the "best practices" recommended by the APA or Smart Growth America, the lack of analysis of current conditions challenges claims of sustainability as a primary motivation. The proposed plan relies heavily on attracting higher-income residents while removing current residents in order to achieve its goals and absorb public costs. A plan focused on vulnerabilities would reveal additional public costs (social and ecological) associated with displacement and public benefits to building current residents into the plan. Assessments of social and ecological vulnerabilities, combined with historical research revealing how vulnerabilities are produced, would provide a more robust discussion of costs and benefits and how these might be distributed through a more conscious, integrated strategy.

An articulation of how the ERCMP plan contributes to city and regional goals associated with, for example, reducing greenhouse gas emissions and increasing regional transportation options, would be an explicit component of public discussion. Such neighborhood and cross-scale analyses would facilitate the identification of anticipated costs and benefits, and would clarify relationships between specific components within the proposed plan and future costs and benefits. Linking an analysis of the potential displacement of low-income households to ecological impacts produced in neighborhoods outside the East Riverside neighborhood would provide insight into how displacement does not resolve problems but only moves them. Historical analysis that focuses on the production of vulnerabilities also facilitates an understanding of how patterns of investment, development and land use have contributed to the development of an ecologically vulnerable neighborhood through neglect and inattention.

Conclusion

In closing, we argue that current approaches to redevelopment planning produce or reinforce vulnerabilities which collectively undermine the sustainability of cities across different spatial scales. Redevelopment plans espousing sustainable development goals but ultimately driven by economic development goals often have disastrous consequences for current vulnerable residents. Specifically, transit-oriented redevelopment plans that fail to

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

analyze existing conditions – including neighborhood vulnerabilities and strengths – lack analytic rigor while also failing to align with goals of sustainable development. An alternative conceptual approach, which integrates analyses of existing conditions, historical understandings of vulnerabilities and strengths, and future-oriented goals for improving neighborhood and citywide sustainability, is an attempt at reformulating the calculus of planning.

The production of vulnerabilities is an antonym of sustainability; assessing vulnerability production re-orients analysis, while also challenging the assumption that redevelopment plans generate benefits for all community residents. Vulnerability assessments can provide a more rigorous and critical understanding of the impacts of redevelopment plans on existing communities. As urban densification strategies become more common, planning practice is presented with an opportunity to be more strategic and analytical while working towards the creation of sustainable neighborhoods and cities.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Acknowledgements

The authors would like to thank Dana Stovall Garcia, Christine Pusch and Ruby Roa for able research assistance. They also thank the residents of East Riverside, the city planners and elementary school principals and ministers who shared their views with us. We also thank those attending an early presentation of this work at the 2009 annual meeting of the Association of Collegiate Schools of Planning for their encouragement and feedback. Finally, we thank the journal editors and reviewers.

Notes on contributors

Elizabeth J. Mueller is an associate professor of community and regional planning and social work in the School of Architecture at the University of Texas at Austin. Her work focuses on the tensions between current planning strategies and social equity.

Sarah Dooling is an assistant professor of urban ecology in the School of Architecture and the Environmental Sciences Institute at the University of Texas at Austin. Her work focuses on the intersections of ecological function and poverty, with a particular focus on ecological gentrification.

Notes

1. The two planning areas were the Montopolis Planning Area and the East Riverside/Oltorf Combined Neighborhood Planning Area.
2. "The quality of the city's housing and neighborhoods, including older, centrally located neighborhoods, is important to the well-being of every resident in the community" (City of Austin 1979, p. 64). Stated sub-goals included: "protect existing neighborhoods from the intrusion of higher intensity land uses" and "increase the power of neighborhood residents in decisions affecting the neighborhood" (City of Austin 1979, p. 64).

References

Adger, W.N., 1999. Social vulnerability to climate change and the architecture of entitlements. *Mitigation and Adaptation Strategies for Global Change*, 5, 4253–4266.

American Planning Association, 2000. *Policy guide on planning for sustainability.* Adopted April 16. Available from: http://www.planning.org/policy/guides/adopted/sustainability.htm [Accessed 1 August 2009].

American Planning Association, 2002. *Policy guide on Smart Growth*. Adopted April 14. Available from: http://www.planning.org/policy/guides/adopted/smartgrowth.htm [Accessed 1 August 2009].

American Planning Association, 2008. *Policy guide on planning and climate change*. Adopted April 27, 2008. Available from: http://www.planning.org/policy/guides/pdf/climatechange.pdf [Accessed 6 August 2009].
Andrey, J. and Jones, B., 2008. The dynamic nature of social disadvantage: implications for hazard exposure and vulnerability in Greater Vancouver. *The Canadian Geographer*, 52 (2), 146–168.
Austin Investor Interests, 2007. *Austin MSA submarket boundaries 2007. Map*. Austin: Austin Investor Interests.
Blaikie, P., Cannon, T., Davis, I., and Wisner, B., 1994. *At risk: natural hazards, people's vulnerability, and disasters*. London: Routledge.
Brookings Institution, Metropolitan Policy Center, 2010. *The state of metropolitan America: on the front lines of demographic transformation*. Washington, DC: Brookings Institution.
Bullard, R.D., 1990. *Dumping in Dixie: race, class and environmental quality*. Boulder: Westview Press.
Burton, I., Kates, R.W., and White, G.F., 1992. *The environment as hazard*. New York: Oxford University Press.
City of Austin [Texas], 1979. *Austin Tomorrow comprehensive plan*.
City of Austin, 2006. *East Riverside/Oltorf combined neighborhood plan*.
City of Austin, 2007. *City Council minutes*. November 29.
City of Austin. 2008. *East riverside corrider master plan. About the consulting team*. Available from: http://www.ci.austin.tx.us/urbandesign/riversideplanmaster.htm [Accessed 20 November 2011].
City of Austin (Air Quality Program), 2009a. COA O3 reduction strategies. Available from: http://www.ci.austin.tx.us/airquality/o3red.htm [Accessed 27 September 2009].
City of Austin (Department of Planning and Development Review), 2009b. *East Riverside Corridor master plan*. Draft. June. Available from: http://www.eastriversidecorridor.com [Accessed 5 January 2010].
City of Austin (Department of Planning and Development Review), 2009c. *East Riverside Corridor master plan*. Draft. August. Available from: http://www.eastriversidecorridor.com [Accessed 5 January 2010].
City of Austin, 2009d. *Downtown Austin Plan – urban rail*. Available from: http://www.ci.austin.tx.us/downtown/dap_urban_rail.htm [Accessed 20 January 2010].
City of Austin, n.d. Watershed Protection Department. Watershed Protection Master Plan. Phase I Watersheds Report. Table 12: Localized Drainage Systems Upgrade Estimates. Austin, TX: City of Austin. Available from: http://www.ci.austin.tx.us/watershed/rptmp14.htm#table12 [Accessed 20 November 2011].
Coleman, J.S., 1988. Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95–S120.
Cutter, S., 1996. Vulnerability to environmental hazards. *Progress in Human Geography*, 20 (4), 529–539.
Dominguez, S. and Watkins, C., 2003. Creating networks for survival and mobility: social capital among African-American and Latin-American low-income mothers. *Social Problems*, 50 (1), 111–135.
Ewing, R., *et al*., 2008. *Growing cooler: the evidence on urban development and climate change*. Washington, DC: Urban Land Institute.
Findlay, A.M., 2005. Editorial: Vulnerable spatialities. *Population, Space and Place*, 11, 429–439.
Freid, M., 1966. Grieving for a lost home: psychological costs of relocation. *In*: J.Q. Wilson, ed. *Urban renewal: the record and the controversy*. Cambridge, MA: MIT Press, 359–379.
Freund, D.M.P., 2007. *Colored property: state policy and white racial politics in suburban America*. University of Chicago Press.
Fullilove, M., 2004. *Root shock: how tearing up city neighborhoods hurts America, and what we can do about it*. New York: Random House.
Gans, H., 1962. *Urban villagers: group and class in the life of Italian-Americans*. New York: Free Press.
Hardoy, J.E., Mitlin, D., and Satterthwaite, D., 2001. *Environmental problems in an urbanizing world*. London: Earthscan.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Harner, D., 2009. Demographic analysis and enrollment projections for the Austin Independent School District. 2009-2010 update. Austin, TX: Harner and Associates. Available from: http://www.austin.isd.tenet.edu/inside/2004bond/boundaries/docs/2010_demographic_update_report.pdf [Accessed 10 February 2010].

Hartman, C., 1966. The housing of relocated families. *In*: J.Q. Wilson, ed. *Urban renewal: the record and the controversy*. Cambridge, MA: MIT Press, 293–335.

Harvey, D., 1996. *Justice, nature and the geography of difference*. Oxford: Blackwell.

Hewitt, K., 1997. *Regions of risk: a geographical introduction to disasters*. Harlow: Longman.

Heynen, N., Perkins, H.A., and Roy, P., 2006. The political ecology of uneven green space: the impact of political economy on race and ethnicity in producing environmental inequality in Milwaukee. *Urban Affairs Review*, 42 (1), 3–25.

Hogan, D.J. and Marandola, E., 2005. Toward an interdisciplinary conceptualization of vulnerability. *Population, Space and Place*, 11, 455–471.

Hirsch, A.R., 1998. *Making the second ghetto: race and housing in Chicago 1940–1960*. Chicago: University of Chicago Press.

ICMA and Smart Growth Network, 2002. *Getting to Smart Growth: 100 policies for implementation*. Washington, DC: ICMA Press.

ICMA and Smart Growth Network, 2003. *Getting to Smart Growth II: 100 more policies for implementation*. Washington, DC: ICMA Press.

Jackson, K.T., 1985. *Crabgrass frontier: the suburbanization of the United States*. New York: Oxford University Press.

Kates, R.W., 1985. The interaction of climate and society. *In*: R.W. Kates, J.H. Ausubel, and M. Berberian, eds. *Climate impact assessment: studies of the interactions of climate and society*. Chichester: Wiley, 3–36.

Lee, D., 2005. The growth of low-income population in floodplain: a study of Austin, TX. Professional report (M.S. in Community and Regional Planning), University of Texas at Austin.

Liverman, D.M., 1990. Drought impacts in Mexico: climate, agriculture, technology, and land tenure in Sonora and Puebla. *Annals of the Association of American Geographers*, 80 (1), 49–72.

Massey, D.S. and Denton, N.L., 1993. *American apartheid: segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.

Menjivar, C., 1997. Immigrant kinship networks: Vietnamese, Salvadoreans and Mexicans in comparative perspective. *Journal of Comparative Family Studies*, 28, 1–24.

Mueller, E.J., *et al*., 2011. Looking for home after Katrina: postdisaster housing policy and low-income survivors. *Journal of Planning Education and Research*, 31 (3), 291–307.

National Research Council, 2009. *Driving and the built environment: the effects of compact development on motorized travel, energy use and CO2 emissions*. Committee for the Study on the Relationships Among Development Patterns, Vehicle Miles Traveled, and Energy Consumption. Transportation Research Board. Board on Energy and Environmental Systems.

Ng, M., *et al*., 2007. Preserving affordable apartments in Austin: case study of the East Riverside/Oltorf Combined Neighborhood Planning Area. Paper prepared for CRP 388 Affordable Housing Policy. Austin, TX: University of Texas, Center for Sustainable Development.

Oden, M.D., 2009. Equity: the forgotten E in sustainable development. *In*: S.A. Moore, ed. *Pragmatic sustainability: theoretical and practical tools*. New York: Routledge.

Olpadwala, P. and Goldsmith, W.W., 2002. The sustainability of privilege: reflections on the environment, the third world city, and poverty. *World Development*, 20 (4), 627–640.

Pelling, M., 2003. Paradigms of risk. *In*: M. Pelling, ed. *Natural disasters and development in a globalizing world*. New York: Routledge, 3–16.

Polsky, C., Neff, R., and Yarnal, B., 2007. Building comparable global change vulnerability assessments: the vulnerability scoping diagram. *Global Environmental Change*, 17, 472–485.

Popkin, S.J., Cunningham, M.K., and Burt, M., 2005. Public housing transformation and the hard-to-house. *Housing Policy Debate*, 16 (1), 1–24.

Popkin, S.J., *et al*., 2004. *A decade of HOPE VI: research findings and policy challenges*. Washington, DC: The Urban Institute and The Brookings Institution.

Pusch, C., 2009. List of businesses located on East Riverside Drive. August. Unpublished research notes. University of Texas at Austin, Community and Regional Planning Program.

Putnam, R., 2000. *Bowling alone: the collapse and revival of the American community*. New York: Simon and Schuster.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013

Robinson, R., n. d. Top ten big demographic trends in Austin, Texas. City demography program, city of Austin. Available from: http://www.ci.austin.tx.us/demographics/ [Accessed 29 May 2010].
Ross, C.E., Mirowsky, J., and Pribesh, S., 2001. Powerlessness and the amplification of threat: neighborhood disadvantage, disorder and mistrust. *American Sociological Review*, 66, 568–591.
Sanderson, D., 2000. Cities, disasters, and livelihoods. *Environment and Urbanization*, 12 (2), 93–102.
Solnit, R., 2009. A paradise built in hell: the extraordinary communities that arise in disaster. New York: Viking Press.
Stack, C., 1974. *All our kin: strategies for survival in a black community.* New York: Harper and Row.
Sugrue, T., 1996. *The origins of the urban crisis: race and inequality in postwar Detroit*. Princeton, NJ: Princeton University Press.
Timmerman, P., 1981. Vulnerability, resilience and the collapse of society. Environmental Monographs, No. 1. Institute for Environmental Studies, University of Toronto, Ontario.
Thomas, J.V., 2009. *Residential construction trends in America's metropolitan regions*. Washington, DC: United States Environmental Protection Agency, Development, Community and Environment Division.
ULI – the Urban Land Institute and PricewaterhouseCoopers LLP, 2006. Best Bets: 2007, *Emerging Trends in Real Estate 2006*. Washington, DC: ULI – the Urban Land Institute.
US Census. 2000. SF3. P30. Means of transport to work for workers 16 years and over, zip code 78741.
US Green Building Council, Congress for a New Urbanism, and Natural Resources Defense Council, 2009. LEED for Neighborhood Development 2009: ballot draft – project scorecard, Washington, DC.
University of Texas (Division of Housing and Food Service), 2007. *An overview of housing at the University of Texas*. Available from: http://www.utexas.edu/student/housing/index.php?site=0&scode=0&id=725 [Accessed 7 October 2009].
Walzer, M., 1983. *Spheres of justice: a defense of pluralism and equality.* New York: Basic Books.
Wisner, B., *et al*., 1994. *At risk: natural hazards, people's vulnerability and disasters*. London: Routledge.

Downloaded by [University of Texas at Austin] at 09:54 12 March 2013