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A Sustainability Analysis of Workforce Housing Development Tools

Urban Land Institute – Arizona Task Force for Health, Equity, and Housing Affordability

ABSTRACT

Arizona and the Phoenix metropolitan area are experiencing a housing crisis, both in terms of affordability and supply. While the number of affordable and available units has been shrinking, a separate trend has emerged that is also adding pressure to the housing market, particularly for renters—a demand for transit-oriented, walkable, sustainable communities. As governments invest in projects and infrastructure falsely branded as sustainable, environmental gentrification often occurs resulting in displacement of current residents. Without new, moderately priced housing being built, displaced residents remain housing cost burdened. Workforce housing, priced to serve lower-middle to middle-income residents, offers a release from the pressure on the housing market, but innovative models for workforce housing development are necessary to navigate the regulatory and financial barriers in place. During a Solutions Round Table event facilitated by my client, a variety of potential tools for mitigating the housing crisis and removing barriers to workforce housing development were discussed. Based on conversations documented during the event, a robust list of workforce housing development tools was created. With the help of my client, the list was winnowed down to six tools for focused research—off-site construction, cohousing, land banks, missing middle infill models, community land trusts combined with limited equity cooperatives, and public-private partnerships. This project describes these tools and outlines best practices for developing and implementing them in the Valley. The best practices are organized to serve as guidance for the private sector and public sector separately, and for embedding health and social equity. Each tool is assessed using a simplified version of Gibson’s (2006) sustainability criteria, combined into four dimensions—environment, social, economic, and holistic. The findings from the assessment are embedded as guidance throughout the final product, a white paper, which will be delivered to Urban Land Institute (ULI) Arizona District Council Task Force for Health, Equity, and Housing Affordability, my client for this project.

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INTRODUCTION AND BACKGROUND

The State of Arizona and Maricopa County have an established reputation for being unaffordable when it comes to housing costs to income ratios. This relatively new reputation stands in stark contrast to Arizona's reputation ten years ago when people fled expensive rents in coastal cities to come to Arizona. A number of factors contributed to this reputational flip including an underproduction of units, stagnant wages, and instability of key affordable housing funding sources (Kingsella, 2019; NLIHC, 2019a; NLIHC, 2019b). As housing affordability has decreased, a parallel trend has emerged—residents, particularly millennials, are increasingly demanding walkable, livable, transit-oriented neighborhoods (Pfeiffer, Pearthree, & Ehlenz, 2019). In response to demands, local governments are reinvesting in their urban cores through capital improvement and large-scale infrastructure projects intended to draw in developers, businesses, and new residents.

These government investment projects often come in the form of new transit infrastructure and accompanying zoning code changes to allow for denser development in adjacent neighborhoods. Government projects also include park improvements, new bicycle infrastructure, and green infrastructure, among others. These projects have a variety of positive effects. They encourage investment in urban cores and transit-accessible neighborhoods, driving up property values and spurring further development. They increase the overall housing supply by encouraging multi-family and mixed-use developments. They provide sustainable transportation and encourage infill and other forms of dense development with lower environmental impacts and positive health outcomes. They also improve access to high quality parks and green spaces, while mitigating the urban heat island effect. These projects, while seemingly ecologically and socially conscious, often co-opt sustainable development practices to increase profits at the expense of communities, driving economic and cultural neighborhood change, or gentrification (Zuk et al. 2018; Checker, 2011). Without an intentional focus on equity, these projects often displace low-to-middle-income and minority households currently living in newly desirable areas, depriving them of any economic and environmental benefits. This is a process coined as environmental gentrification (Checker, 2011).

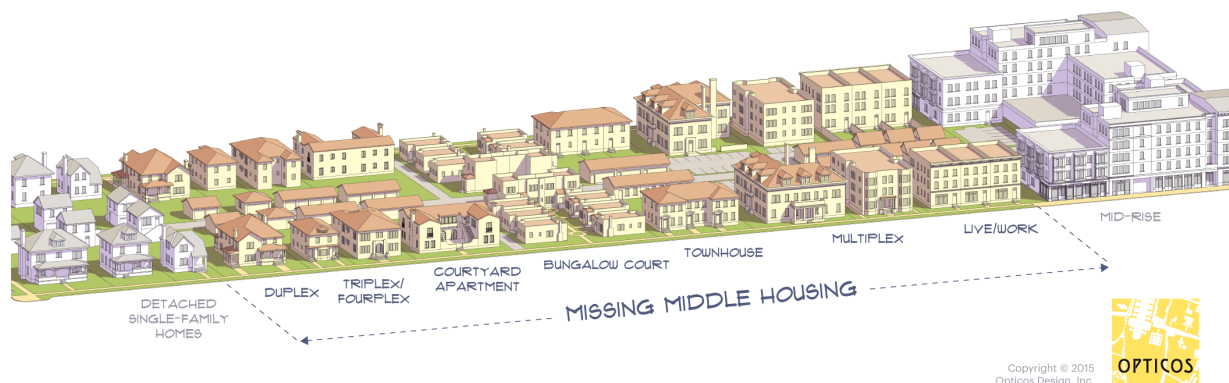
The gentrification process is often characterized by, but separate from, displacement. For the purposes of this project, displacement is defined as forced or responsive household relocation following, or in anticipation of, sustainability-oriented investments in transit and urban cores (Zuk et al. 2018). Gentrification is a highly controversial process, primarily due to its direct connection to displacement. However, gentrification can be “good or bad for a neighborhood depending on who benefits from the reinvestment and revitalization” efforts (Pollack et al. 2010, p. 2). The purpose of this project is to extract displacement from the environmental gentrification process by identifying workforce housing solutions that contribute to holistically sustainable outcomes. Equitable access to affordable and attainable housing is a key component of creating sustainable communities and cities. By developing affordable housing in areas undergoing environmental gentrification, two problems central to the housing crisis can be addressed at once—residential displacement and the limited supply of affordable housing for low-to-middle-income households.

Displacement, as a result of environmental gentrification, causes problems in two locations. First, unless cities and developers are actively building workforce and affordable housing to replace the loss of naturally occurring affordable housing, affordability issues arise in the communities undergoing gentrification. Workforce housing is traditionally defined as housing that is affordable for households earning between 80 and 120 percent of the area median

income (AMI). However, the Task Force elected to expand the definition of workforce housing to better reflect Valley workforce incomes. Therefore, for the purposes of this project, workforce housing includes households earning 60 to 120 percent of the AMI. Second, because Arizona already has a deficit of affordable and available homes for rental households earning 80 percent or less of the AMI, affordability and availability issues are exacerbated in the communities where displaced residents relocate (NLIHC, 2019a). Despite the limited supply of affordable units for the Valley’s workforce, new development has largely come in the form of luxury rentals and traditional suburban homes. These same development trends can be seen in cities across the United States from Nashville to Denver. Increasingly, the conversation surrounding the national and local housing crises are focusing on the “missing middle,” both in terms of housing typologies and affordability for middle-income households.

The concept of the “missing middle” was developed by Dan Parolek and Opticos Design in 2010 (Figure 1). The phrase encompasses a range of housing types defined as the “middle” in terms of height, density, and affordability. These housing types are missing because they have been illegal in single-family zoned neighborhoods in most American cities for decades (OD, 2020). Limited access to capital for “middle” housing projects has also restricted supply. These projects are often less profitable than apartments or single-family homes, but they are not eligible for government subsidies if produced at market rate. Concerns about the missing middle, for both housing types and affordability, strongly resonated with the Task Force members. The concept of naturally affordable, market-rate development also aligns with ULI’s goals, the interests of their membership base, and therefore, their scope of influence. For these reasons, the Task Force and this project will focus specifically on market-rate workforce housing solutions, rather than subsidized affordable housing solutions. Workforce housing is just one piece of the puzzle. By focusing on workforce housing, we can alleviate some of the pressure on local governments, so they can focus on affordable housing for households making less than 60 percent of the AMI. Workforce solutions address the missing middle and encompass other innovative market-based affordable housing solutions, both of which will be needed to alleviate Arizona’s housing crisis.

Figure 1. Types of Missing Middle Housing as Defined by Opticos Design (2020).



To address Arizona’s housing shortage and affordability crisis and to mitigate displacement in Valley cities, I produced a set of viable workforce housing tools for the Valley and assessed them using a simplified version of Gibson’s (2006) core criteria for sustainability. First, I created an extensive inventory of workforce housing tools based on conversations with

local stakeholders during the Task Force’s Solutions Round Table event. I presented the inventory to the Task Force leadership to collect feedback and select five to ten tools for focused research and expert interviews. The research focused on identifying best practices and guidance on tool development and implementation for the public and private sectors, as well as best practices for embedding health and equity. For this project, a holistic definition of health that accounts for the social and environmental determinants of health is used. Health refers to a “state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” (WHO, 2014, p. 1). Based on my research, I assessed each tool using evaluative questions informed by the four key components of healthy and equitable housing solutions—regulations, financing, location and land, and partnerships—and the four sustainability dimensions derived from Gibson’s (2006) core criteria for sustainability. The tools and sustainability assessments will be presented in a white paper for the Task Force and ULI to share with stakeholders. The solutions will contribute to the Task Force and ULI Arizona’s shared goals of alleviating the housing cost burden for Valley residents, preventing displacement, and investing in sustainable solutions.

LITERATURE REVIEW

There is ample evidence to illustrate the breadth and depth of the housing crisis in Arizona. As previously noted, several factors are contributing to the crisis, including the underproduction of units and mismatched wages and rents. Between 2000 and 2015, Arizona underproduced the necessary number of homes to meet demand by 505,134 homes (Kingsella, 2019). Put in different terms for the Maricopa County context, for every 5.5 jobs added between 2010 and 2017, only one housing unit was built (Kingsella, 2019). The number of new households formed is more representative of the number of units needed to accommodate demand. For each new household formed in Maricopa County from 2000 to 2017, developers and localities built an average of 0.77 housing units (Kingsella, 2019). This underproduction of housing led to a shortage in supply and caused rents to rise quickly.

Incomes in Arizona have not kept pace with rising rents. The minimum wage is currently set at 11 dollars per hour and the fair market rent (FMR) for a two-bedroom rental unit, as determined by HUD for the state, is \$1,015 per month. To afford a one-bedroom rental unit at fair market rent (FMR) in Arizona, an individual making minimum wage must work 57 hours per week or approximately 1.4 jobs (NLIHC, 2019b). For a unit to qualify as affordable for a household, the household must pay no more than 30 percent of their income on housing costs otherwise they are considered housing cost burdened (NLIHC, 2019a). The housing wage required to afford a rental unit at FMR, working 40 hours per week, 52 weeks per year, while paying no more than 30 percent of their household income on rent and utilities, is \$20.63 per hour in Maricopa County (NLIHC, 2019b).

Displacement as a result of environmental gentrification is compounding the housing crisis by further driving up costs and replacing naturally occurring affordable housing with luxury housing. A broad review of the literature related to gentrification, displacement, and sustainability revealed the nuances of this wicked sustainability problem. Economically speaking, light rail installation and other forms of transit investment can significantly increase household income and property values in transit adjacent neighborhoods (Bardaka et al. 2018). Access to light rail and bus stops can also significantly improve access to low-wage jobs for residents who are able to remain in place (Fan et al. 2012). Environmentally speaking, adding light rail allows cities to increase allowable zoning densities within a designated distance of transit lines, reducing greenfield development and increasing access to low-carbon transportation options (Cappellano & Spisto, 2014). Topalovic et al. (2012) identify other policies that can be implemented with transit development, like limiting parking requirements downtown, that can indirectly reduce greenhouse gas emissions. Secondary benefits of transit-oriented development, like reduced pollution and increased walkability, contribute to the primary social benefit—positive public health outcomes (Cappellano & Spisto, 2014). However, in terms of social sustainability, the overall social benefits of investments in transit and urban cores, such as increased access to transit and parks and improvements to walkability, are very limited unless workforce and affordable housing are built or preserved to prevent the displacement of current residents.

Developing workforce housing is just one solution of many required to address the housing affordability crisis in the Valley. The ULI Arizona Task Force has opted to focus on workforce housing development because it falls within their scope of influence, as the ULI membership consists primarily of developers, planners, and real estate professionals. The limited supply of workforce housing represents a challenge that ULI's membership can help tackle. As rents rise, middle-income renters are priced out of significant portions of the housing stock, but

often those households still do not qualify for subsidized housing (Rosenthal, 2019). Developers are pricing their rents at higher rates for good reasons. The cost of construction products increased by 7.4 percent in 2018, primarily due to dramatic increases in the costs of materials including fuel, steel, aluminum, and asphalt (AGC, 2018). A shortage of construction labor has also increased the lengths of projects, forcing bid contracts to be more expensive overall (Rosenthal, 2019). In addition to the costs of labor and materials, government regulations add costs through permits and zoning changes.

The limited supply of workforce housing and the financial and regulatory barriers discouraging its production are evidence of the need for more research on innovative workforce housing tools and solutions. A description of each tool alone will not suffice. The components of each tool and the processes for development and implementation must be identified and modified to fit in the Arizona context. Land, location, design, construction materials and methods, financing, partnerships, and policies must all be addressed (Rosenthal, 2019). For this project, six tools were assessed using a simplified version of Gibson's (2006) core generic criteria for sustainability to determine how the tools should be developed and implemented sustainably in the Valley context. The six tools will be presented in a white paper, a common format for delivering information on housing affordability problems and tools for change in a concise manner (Robinson, Khidekel, & Balaños, 2019; Abu-Khalaf, 2018; Peterson, 2016).

PROJECT APPROACH AND INTERVENTION METHODS

The scope and final products for my Applied Project were formulated over a series of meetings with the ULI Arizona District Council Task Force for Health, Equity, and Housing Affordability. The Task Force is composed of housing, health, and equity experts from across the Valley. In the latter half of 2019, the Task Force met regularly to determine how to contribute to the local conversation on housing affordability and to establish strategies and objectives for meaningful research and engagement on the topic of housing. In November 2019, the Task Force solidified their primary objective to produce and promote ideas for innovative workforce housing tools and solutions that could work in the Phoenix metropolitan area. The Task Force identified four key components necessary for creating healthy and equitable workforce housing solutions—1) regulations and planning practices, 2) financing tools and sources of capital, 3) location and land, and 4) partnerships.

For my MSUS Applied Project, I conducted research, helped facilitate a solutions round table event with local leaders, and conducted interviews with local and national leaders to develop a set of viable workforce housing development tools for cities in the Valley. The set of tools will be presented in a white paper with detailed information on they contribute to the four key components required for creating housing solutions in the Arizona regulatory, economic, environmental, and social contexts. The white paper will be organized into four sections describing best practices, barriers and benefits for each of the following: the private sector, the public sector, health, and equity. Each of the tools selected was analyzed using a simplified version of Gibson's (2006) sustainability criteria with the three pillars of sustainability serving as the organizational structure for sorting each criterion. Then, based on the analysis, I outlined specific aspects of each workforce housing development tool to illustrate its performance environmentally, socially, economically, and holistically across the pillars. I will integrate this information into the white paper and provide guidance on how and where improvements can be made. The white paper will be reviewed twice prior to the completion of the final version—once by the entire Task Force and once by the Task Force core team. The set of tools and sustainability analysis will be provided to the ULI Arizona District Council Task Force to supplement and support their work.

The work for this project was conducted in three stages. In stage one, I facilitated conversations among key stakeholders in the Valley during a solutions round table event on Wednesday, February 5, 2020. Using guiding questions I co-developed with PLAN*et Communities and the Task Force leadership, round tables were held to discuss the four key components necessary for creating healthy and equitable housing solutions. Approximately 65 local housing stakeholders, including Task Force members, attended the event. The attendees came from diverse sectors ranging from ASU faculty to market-rate housing developers to local and state elected officials. Attendees participated in round table discussions on two of the four key components of housing solutions. The conversations were documented by notetakers and the notes were consolidated for analysis. I conducted a content analysis for each set of notes to identify repeated comments and reoccurring themes. The themes were divided into three categories—general comments, new ideas, and existing solutions. The new ideas and existing solutions proposed during the roundtables were researched further to develop a detailed inventory of workforce housing solutions. The general comments included information on potential barriers to address.

Stage one also included a non-exhaustive review of existing workforce housing types that could serve as solutions in Arizona. I used the many different ideas, tools, and solutions

proposed during the round table event as a starting point for my research. Based on the analysis of the round table notes, I created a list of terms for a key word search. In addition to a key word search, I researched existing tools noted during the round tables. I researched tools until the established deadline for submittal to the Task Force—Friday, February 21. The Task Force core team reviewed the inventory of tools and provided insights on which tools warranted further research. Based on their feedback, I selected nine tools for focused research. I submitted the list with justification for their inclusion to the core Task Force team on Friday, February 28. They reviewed the proposed tools, then we reconvened to finalize the list. Six workforce housing development tools were selected. They include the following: 1) cohousing for mixed-incomes and generations, 2) infill developments that address the missing middle, 3) combined limited equity cooperatives (LEC) and community land trusts (CLT), 4) public-private partnerships (P3), 5) land banks, and 6) pre-fabricated, modular, and offsite construction.

Stage two consisted of focused research and interviews on the six tools selected by the Task Force. I gathered information on the how the tool contributed to the four key components for creating healthy and equitable housing. I also conducted research on the implications, strategies, and best practices for developing and implementing each tool for the private sector and public sector, as well as best practices for integrating equity and health into tool development and implementation. I used these sections—private sector, public sector, equity, and health—to organize my questions in each interview script. Nine interviews were conducted with national and local experts, including a minimum of one expert interview per tool. The Task Force and ULI staff facilitated introductions with appropriate experts. Due to the individualized nature of these interviews, I created a unique interview script for each interviewee. The interviews were recorded and transcribed using Rev, a high quality transcription service, or Zoom was used for both recording and transcription. Finally, the transcripts were analyzed and used to fill in the knowledge gaps for each of the six tools.

Stage two also included a sustainability assessment of each tool. Gibson's core generic criteria for sustainability are often used to evaluate projects and solutions to determine their impact on sustainability holistically (2006). Based on conversations with Dr. Katja Brundiers, I decided to simplify Gibson's criteria by combining them into four dimensions. The four dimensions are comprised of the three pillars of sustainability and a fourth dimension, the holistic integration of the three pillars. Gibson's criteria were sorted into these dimensions based on Barbier's (1987) goals ascribed to each pillar of sustainability. Table 1 illustrates how the criteria were sorted. Each tool was assessed to determine how well it supported each dimension of sustainability. The assessment was conducted in a manner similar to Lamorgese and Geneletti's (2013) sustainability analysis of strategic environmental assessments. Each dimension was subdivided into categories relevant to the development and housing fields. Finally, evaluative questions requiring yes or no answers were written for each category to evaluate the tool's performance in each dimension. The evaluative questions were developed to determine if each tool addresses the four key components of healthy and equitable workforce housing and meets Gibson's sustainability criteria (2006) (Table 2). The questions were developed using the cumulative knowledge from my research for this project, my MUEP applied project research and interviews, numerous reports, assignments, and projects I have worked on over the course of my three year graduate career, and my work as an urban planner. The specific sources that informed the questions are listed at the end of Table 2. Each question was answered using yes or no and a qualifying statement explaining each answer. In the final step of the sustainability assessment, I will describe how the tool should be designed and implemented using

the four dimensions of sustainability. This information will be integrated throughout the white paper.

In the final stage of my project, I am developing a white paper detailing the selected tools. The white paper is not yet complete. Each tool will include the following sections:

1. **Private Sector** – This section is meant to provide guidance specifically for private sector entities. It will outline the benefits of the tool and best practices for financing, building partnerships, engaging the community, and removing barriers.
2. **Public Sector** – This section is meant to provide guidance specifically for public sector entities. It will outline the benefits of the tool and best practices for eliminating development barriers, supporting developers, engaging the community, leveraging finite resources, and building partnerships.
3. **Equity** – This section will provide guidance for the public and private sectors. It will provide best practices for integrating social, environmental, and economic equity into workforce housing development, highlight opportunities for improving equity that are associated with the tool, and provide guidance on how to address equity-related challenges associated with the tool.
4. **Health** – This section will provide guidance for the public and private sectors. It will provide best practices for integrating health equity and healthy design elements into workforce housing development, in addition to highlighting health benefits and addressing negative health impacts associated with the tool. It will address health and housing holistically, including access to clean water and air, access to transportation, healthy, affordable foods, quality jobs and education, and safe and violence free neighborhoods and parks (LACDPH, 2015).

The sustainability assessment will serve as a cross-cutting instrument for evaluating the potential components and processes required to develop and implement each workforce housing tool. The findings from the assessment will inform and be integrated into the best practices, opportunities, guidance, and benefits described for each tool. The assessment will be presented in both table format and as a narrative woven into the white paper.

The final product—the white paper—and the original inventory of workforce housing tools will be provided to the ULI Task Force, ULI Arizona, and ULI National so they can share innovative workforce housing development tools with their members and stakeholders. I hope that through the distribution of these products, developers, investors, cities, and advocates are inspired to pursue unique housing solutions. The specific focus on sustainability allows stakeholders to advance multiple goals at once, even as they focus on housing more specifically. By connecting intentionally affordable housing with sustainable investments in urban cores and transit, the housing crisis can be alleviated while maximizing socially, economically, and environmentally sustainable outcomes.

Table 1. Gibson’s Core Generic Criteria for Sustainability Categorized by Principle

Dimension	Principles
Environmental	Socio-ecological system integrity, Resource maintenance and efficiency
Social	Intragenerational equity, Intergenerational equity, Socio-ecological civility and democratic governance
Economic	Livelihood sufficiency and opportunity
Holistic	Precaution and adaptation, Immediate and long-term integration

Table 2. Evaluative Questions Designed for a Sustainability Analysis of Workforce Housing Development Tools

Dimension	Category	Evaluative Question
Environmental	Land Use	Promotes density over sprawl?
	Waste	Minimizes material and energy waste?
	Energy	Reduces energy use (household and transportation) through design?
	Climate	Reduces greenhouse gas emissions long-term?
Social	Community Engagement	Includes a robust, equitable community engagement process?
	Mental Health	Promotes social connectivity?
	Access	Improves access to necessary goods and services (i.e. healthcare, transit, healthy food, schools, parks, etc.)?
	Community Stability	Prioritizes preventing displacement of current residents?
Economic	Labor	Prioritizes the use of local labor?
	Employment	Equitably expands access to employment opportunities?
	Wealth	Equitably expands opportunities for wealth-building?
	Housing Affordability	Addresses the attainability and affordability gaps in the housing market?
Holistic	Equity	Integrates intragenerational and intergenerational equity into all aspects of the development process?
	Health	Integrates health considerations into all aspects of the development process?
	Complementary	Enhances mutual strengths without categorical violations?
	Robust	Designed for longevity and adaptability?

Sources: AADTF, 2018; AAPI, 2016; Aboelata et al., 2017, All-In Cities, 2019; Barbier, 1987; Cappellano & Spisto, 2014; Checker, 2011; Clay, 1979; de Leon & Schilling, 2017; Gibson, 2006; Lamorgese & Geneletti, 2013; PolicyLink, 2015; Way, Mueller, & Wegmann, 2018; Wisner et al., 2004; WHO, 2014; Zuk et al., 2018

OUTCOMES AND FINDINGS

The purpose of my project was not to change the current state of housing directly in the Valley, but rather to indirectly change the housing market by providing developers, government staff, non-profits, and other stakeholders with the tools to develop attainable market rate housing for the Valley's workforce. In light of a variety of unforeseen circumstances and retrospectively obvious mistakes made on my part—including time lost due to covid-19 and an insufficient communication strategy—I am extending the timeline for my project. I will submit the final version of my white paper to ULI on Friday, May 22. When I submit this report on Friday, May 1, I will be in the middle of stage three of my project—the writing stage—therefore I cannot provide a holistically accurate or comprehensive assessment of the changes my work has made to the current state or provide the complete results of my investigation. However, there are several findings I can offer definitively and many I can speculate on using my current knowledge of the housing crisis in Arizona.

There are several layers of complexity that must be considered as we work to mitigate displacement and address the missing middle in the Valley's housing market. First, there is no widely used term for what the ULI Arizona Task Force is calling “workforce” housing, or housing that serves lower-middle and middle income workers. While semantics may seem trivial, in order to establish pathways for providing this type of housing, there must be a common language used by all of the stakeholders involved in its production. Depending on the source, different articles and reports refer to workforce housing as “attainable” housing (Ducker, Mangold, & Lynn, 2019), “middle-market” housing (JCHS, 2019), “middle-income” housing (MAPC, 2014), and “workforce” housing (Haughey, 2002). In addition, the actual definition for the term may differ as well. While traditionally workforce housing is defined as housing serving households earning 80 to 120 percent of AMI, that is not always the case. The range of the AMI served depends on the regional housing market. ULI Arizona is defining workforce housing as housing serving incomes largely ineligible for government subsidies that have also been largely neglected by the market—60 to 120 percent of AMI. For a City like San Francisco, the upper limit of what is considered workforce may be higher due to the extreme inflation of housing costs compared to incomes. If cities or counties formally adopt a definition for workforce in their region, they can begin to work with a broader range of stakeholders, such as major employers and anchor institutions, whose employees, clients, or customers may fall within this underserved income group.

Further complexity is added by the limited number of resources published on workforce housing, particularly with regard to financing. Many of the reports and articles written on financing, designing, regulating, and developing workforce housing have been published within the last few years (WEC, 2019; Ducker, Mangold, & Lynn, 2019; Hoyt, 2020; NMHC, 2019). As a result, there are no tried and true workforce housing solutions. The existing literature has, however, converged on several recommendations for addressing the workforce housing gap in America's housing supply. Nearly all of these recommendations were made by local housing experts during our Solutions Round Table event in February 2020. I grouped the recommendations by the four key components of healthy and equitable workforce housing to illustrate how they can inform the Task Force's work moving forward, as well as my own (Table 3). These recommendations are used to help address the barriers and fill in the gaps not served by the six tools I conducted focused research on. The recommendations found in the literature will support and inform the best practices included in the white paper. Many of these barriers, like minimum parking requirements, should be addressed before implementing any of the six tools I

researched. ULI and the Task Force can address these barriers using strategies outlined in the white paper.

Table 3. A Non-Comprehensive List of Workforce Housing Development Recommendations Derived from the Literature

Regulations & Planning
<ul style="list-style-type: none"> ▪ Limit or remove parking requirements (Hoyt, 2020) ▪ Reevaluate single-family zoning and shift towards mixed-use and inclusionary zoning (WEF, 2019) ▪ Establish by-right development to add flexibility to zoning code (NMHC, 2019) ▪ Establish procedures to combat NIMBYism (Not in my backyard) (NMHC, 2019)
Financing Tools & Sources of Capital
<ul style="list-style-type: none"> ▪ Seek out impact investors and investors seeking to produce positive social change (WEF, 2019) ▪ Utilize cost saving design and construction tools such as 3D printing and prefabricated units, as well as alternative construction materials, such as cross-laminated timber (Hoyt, 2020; WEF, 2019) ▪ Evaluate the costs and benefits of off-site construction to determine if it is a viable solution (Hoyt, 2020)
Land & Location
<ul style="list-style-type: none"> ▪ Infill development in small, irregularly shaped, or underutilized lots (Hoyt, 2020) ▪ Renovating, redesigning, or co-locating housing in existing buildings (Hoyt, 2020) ▪ Repurpose underused buildings to develop unique housing options (WEF, 2019) ▪ Sell public land, or lease it, with strict affordability covenants (NMHC, 2019)
Partnerships
<ul style="list-style-type: none"> ▪ Encourage developers with experience developing affordable and workforce housing projects to partner with and educate inexperienced developers (WEF, 2019) ▪ Explore cooperative housing and shared ownership models to reduce barriers to entry (WEF, 2019) ▪ Explore employer assisted housing options (WEF, 2019)

While the recommendations vary in specificity, they offer critical insight into what is driving this housing crisis. Originally, I identified limited funding sources and underproduction of units as two of the root causes of the problem, but more in-depth research has revealed them to be dynamic pressures manifested by the true root causes (Wisner et al. 2004). The true root causes are the political and capitalistic systems that dictate the housing market. Local governments impose zoning ordinances, require permits, hearings, and fees, and restrict uses, limiting land availability and driving up costs. Developers are restricted by the costs of labor and materials and are beholden to their investors. According to several Solutions Round Table attendees, investors typically demand returns of 15 to 20 percent or higher on housing development projects. These standards make it difficult for developers to cut costs enough for their units to be affordable for middle-income households. While workforce housing tools have the potential to relieve market pressures, meet demand, preserve environmentally and economically sustainable investments, and promote social sustainability, the tools I proposed are individually insufficient. Collectively, however, they show great promise.

The most significant finding from my research was that the workforce housing models or solution options I researched are not solutions at all. They are actually tools that fall under the four key components of healthy and equitable workforce housing solutions. This became clear as I tested my evaluative questions on land banks, for example. The land bank is a component of the solution that contributes to the viable production of workforce housing because it eliminates or significantly reduces the costs of purchasing land. However, without adding the housing development to the land, I cannot answer whether or not a land bank promotes density over sprawl or promotes social connectivity. Without knowledge of the zoning code or development typology, these questions cannot be answered. So, rather than answering each question with only a yes or no response, I included a qualification with my answer. In most cases, the answer began with “yes, if...” followed by the requirements needed to make that statement true. Now, the question “do land banks promote density over sprawl” can be answered. For example, yes, land banks promote density over sprawl if the land is already zoned for higher density development or is rezoned for higher density development. In this way, the evaluative questions prompt you to think about what other tools are necessary to create a workforce housing solution with sustainability at its core.

In keeping with the land bank example, Table 4 illustrates how the sustainability assessment can be used to determine the gaps associated with each tool. Table 4 includes the evaluative questions and answers each question using the “yes, if...” format described above. The table is filled out based on the literature reviewed and an interview with a national land bank expert, however the responses are preliminary and may be adjusted during the writing process. The remainder of the tools will be analyzed using the sustainability assessment in a similar manner as the white paper is further developed. While the final white paper will provide further context for each workforce housing development tool, table 4 demonstrates the potential value of conducting a sustainability assessment when selecting workforce housing development tools. The white paper will include how the tools can be utilized in the Arizona context, the benefits and the challenges associated with each tool, and the required next steps for developing and implementing each tool sustainably. The next steps section will be organized for the Task Force to use as a strategy for workforce housing development. Areas for further research, policy barriers that require tackling, and gaps in tool performance will be identified and prioritized based on the breadth and depth of their impact, both on other tools and other steps outlined in the strategy.

All of the workforce housing tools can add to the supply of workforce housing, help prevent displacement, and contribute positively to sustainability if they are designed thoughtfully and implemented in combination. These tools are not mutually exclusive. In fact, in combination they are much more likely to reduce project costs enough to allow for reduced rents, making new units attainable and affordable for lower-middle and middle-income households. Developers can select the tools they need to reduce costs and implement the housing products they want to produce. For example, a developer could acquire land through a land bank, use modular units constructed off-site, and include missing middle housing types like courtyard apartments and duplexes. In light of these findings, my white paper will be structured to provide best practices, guidance, and information for each tool for the private sector, public sector, and on health and equity.

Table 4. A Sustainability Assessment of Land Banks

Dimension	Category	Evaluative Question and Response
Environmental	Land Use	<i>Promotes density over sprawl?</i>
		Yes, because the properties acquired by the nonprofit (land banking entity) are existing tax delinquent or abandoned properties within the currently developed area of a locality. Land banking invests in revitalization of properties rather than new greenfield development (NHC, 2017).
	Waste	<i>Minimizes material and energy waste?</i>
		Yes, if the land bank revitalizes the property and restores the original structure on the property to productive use. This method does not prohibit redevelopment of the property to increase density, but it can make it more difficult. In some cases, structures may need to be demolished due to instability, contamination, or to achieve the best and highest use for the land.
Energy	<i>Reduces energy use (household and transportation) through design?</i>	
	Yes, in general updating properties requires updating utilities and appliances to new models with higher energy standards. Depending on the location, adding density to the site could increase access to jobs and necessities via transit, bicycle, or walking. Additionally, if coupled with updated zoning and energy codes, further unit energy reductions could be produced.	
Climate	<i>Reduces greenhouse gas emissions long-term?</i>	
	Yes, if the previous responses are also “yes” and the qualifications are addressed. By reducing household energy consumption through design, prioritizing density, and reducing the amount of waste created during the construction process, greenhouse gas emissions will be reduced overall.	
Social	Community Engagement	<i>Includes a robust, equitable community engagement process?</i>
		Yes, but the strategies and tools for community engagement will vary from land bank to land bank. Many land banks embed themselves within the existing neighborhood or community leadership structure to coordinate community engagement efforts (Heins & Abdelazim, 2014). For example, in Tempe, a land bank might work with the assigned planner and community leaders for each character area. Regardless of the method, the interviewee emphasized the importance of building community trust and developing a plan with the community.
	Mental Health	<i>Promotes social connectivity?</i>
Yes, if the new or revitalized product being developed includes community resources, shared spaces, and promotes inclusivity. Housing products serving this purpose could include cohousing, limited equity cooperatives, or co-living, among others.		
Access	<i>Improves access to necessary goods and services (i.e. healthcare, transit, healthy food, schools, parks, etc.)?</i>	
	Yes, although this can only be done with careful planning. The land bank can prioritize purchasing tax delinquent and abandoned properties in neighborhoods with access to grocery stores and alternative modes of transportation. Alternatively, the new development on the purchased land could co-locate services or amenities and	

		housing, or simply provide services without housing. This is largely dependent on the needs of the community and goals set out for the land bank (Alexander, 2011).
		<i>Prioritizes preventing displacement of current residents?</i>
	Community Stability	Yes, particularly in “hot” market like the Phoenix MSA where investors and developers are purchasing tax delinquent and abandoned properties, flipping the units, and selling them for significantly more money without regard for the former owners or the needs of the community. Land banks present an equitable alternative to this approach (NHC, 2017).
Economic		<i>Prioritizes the use of local labor?</i>
	Labor	Yes, if the developer selected by the land bank for resale or lease is local and works with local partners (i.e. architects, engineers, construction companies, etc.). The land bank can stipulate that any developer selected for sale or lease of the property must hire locally, or require that the developer work with the community to establish a Community Benefits Agreement (CBA). CBAs are project-specific agreements negotiated and agreed upon by the developer and the broader community. CBAs often include requirements for living wages and local hiring and training programs (Pollack, Bluestone, & Billingham, 2010).
		<i>Equitably expands access to employment opportunities?</i>
	Employment	Yes, if the land bank strategically purchases tax delinquent and vacant properties near job centers or with access to alternative modes of transportation. Particularly for those properties in close proximity to job centers, increasing the density appropriately could significantly increase access to employment opportunities.
		<i>Equitably expands opportunities for wealth-building?</i>
	Wealth	Yes, assuming the land bank enforces income restrictions on a certain number of units and provides equal access to rent or purchase units regardless of race, religion, familial status, gender, or sexual orientation. The land bank could elect to partner with a CLT to expanding homeownership opportunities or to develop or establish a limited equity cooperative, as the express purpose of these models is to expand opportunities for wealth-building through homeownership.
		<i>Addresses the attainability and affordability gaps in the housing market?</i>
	Housing Affordability	Yes, according to the interviewee, land banks can sell a piece of property to whoever they choose, and compensation is not limited to a financial exchange. Land banks can, and usually do, consider community benefits to be the compensation, where the benefit is attainable and affordable housing for designated lower-income groups. Developers are able to do this because land costs often account for 10-20 percent of the total project costs, enabling them to pass project cost savings on to the consumer since they are not paying for the land (Hoyt, 2020).
Holistic		<i>Integrates intragenerational and intergenerational equity into all aspects of the development process?</i>
	Equity	Yes, the development process for land banks requires diverse and inclusive community engagement across demographics and income levels. The engagement process creates opportunities for residents to voice their concerns and ensure their needs are met. In order to make a land bank truly equitable, it would need to acquire tax delinquent properties with two pathways forward depending on the property type. 1) If the property is vacant or abandoned, it can be redeveloped in a way that benefits

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		the community. 2) If the property owner still lives in the home and simply requires support with tax payments and property rehabilitation, they should be connected with other city services, rather than being relocated.
		<i>Integrates health considerations into all aspects of the development process?</i>
	Health	Yes, land banks replace blighted and vacant properties with revitalized properties. Living in substandard housing, near vacant lots, and abandoned buildings are tied to higher rates of chronic illness, premature death, lower literacy rates, and behavioral dysfunction, to name a few of the negative outcomes (de Leon & Schilling, 2017). Housing is also increasingly considered a form of healthcare and land banks create or restore healthy homes.
		<i>Enhances mutual strengths without categorical violations?</i>
	Complementary	Yes, the requirements described above are generally mutually beneficial. For example, health is a component of equity and health goes beyond disease and illness. It includes exposure to the elements, access to parks and healthy foods, educational and employment opportunities. By investing in communities using a land bank, these positive impacts to health and equity can be realized based on community input. However, land banks and developers must be aware of the impacts of their investments and couple them with regulatory tools to keep residents in place. These can be included in the contracts land banks create with developers.
		<i>Designed for longevity and adaptability?</i>
	Robust	Yes, if the redeveloped properties are designed for long-term affordability and particularly if the property is leased by the land bank to a developer. Then the land bank can continue to serve the community using the property to best and highest use possible based on continued community feedback.

RECOMMENDATIONS

Following the completion of my research and interviews, I will make specific recommendations for a strategy to the Task Force. However, based on my research thus far, I have several general recommendations for them to consider. I hope these will be particularly helpful as the Task Force navigates the Covid-19 pandemic and reimagines their purpose and final products in light of extended deadlines and shifting needs.

1. Should the Task Force continue to focus on workforce housing, I recommend they delve into the financial component of the workforce housing development strategy at a more granular level. While the white paper outlines financial, political, and regulatory barriers and makes suggestions on next steps, the actions taken are ultimately up to the Task Force. They can flesh out the financial component through further research, interviews, round tables, focus groups, or another forum for public engagement. I recommend they investigate potential funding sources and conduct interviews with a variety of experts to determine the breadth of funding sources available to them prior to any public engagement. Based on expert interviews, many of the financial tools are only finance-adjacent. Instead, they include cost cutting measures such as eliminating fees, streamlining the permitting process, and allowing for higher density developments. They also include building relationships and developing trust with lenders who are willing to invest in innovative new, and often risky, housing products. These methods for reducing costs and securing funding are just as important as creating new funding sources. Once research is complete, the Task Force can share the financial tools with local experts to determine their viability and identify which tools to pursue further.
2. Research, conversations, and experience have made clear which state and local policies and planning processes add costs and slow down—or prevent—workforce housing development. These state and local policies include: the exclusionary single-family zoning code, minimum parking requirements, minimum requirements for set-backs, and the absence of a specific planner dedicated to affordable housing projects, among many others. Armed with this knowledge, I recommend the Task Force begin the arduous task of engaging the public, building awareness, and organizing around regulatory solutions. There is a need for coalition building and action. We know that current zoning policies are exclusionary and limit the overall housing supply. We also know that siloed conversations within local government can lead to miscommunication, added costs, and duplication of efforts. Now, the Task Force should use its power and voice to push for legislative and administrative change. Details on how the Task Force can do this will be provided in the white paper.
3. Reach out to knowledgeable partners nationwide. Draw on the broad reach and innumerable contacts of Task Force members to contact individuals at organizations such as the Center for Community Progress, Opticos Design, Enterprise Community Partners, and others to seek their expertise. Those partners can likely provide insight on how to redesign, or invent, tools that work in Arizona's political and economic climate. This recommendation will be included in the white paper and listed as an action to take prior to any further research or public engagement.
4. Use covid-19 as an example to illustrate the need for change in Arizona. The current state of politics may not allow for some of the tools to be used, but they are worth fighting for,

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particularly as the covid-19 crisis highlights the importance of access to safe, healthy, and equitable housing. Beyond access to medical care, housing is the most critical resource at this time. Think about how these workforce housing tools might contribute to relief from the fear of eviction or double as a tool for housing the homeless and households that are doubled up. For example, pre-fabricated, easy-assemble units could serve to house those in need now, while contributing to the overall supply of housing at a reduced cost. Similar co-benefits will certainly be uncovered should the Task Force seek to identify these connections.

CONCLUSIONS

I am still solidifying the results of my research, but my findings thus far have provided some answers and created many more questions. The six “solution options,” now workforce housing tools, selected by the Task Force cannot alleviate the housing supply and displacement crises alone. In isolation, each tool contributes positively to the development of a complete workforce housing solution, but they are insufficient on their own. While this is a new finding, it is not a surprising one. Each of these tools falls within one of the four key components for healthy and equitable workforce housing and every solution requires all four components. As I continue to research and evaluate the six selected workforce housing tools, I am better able to see how they might be used in combination and what other tools are required to implement them. While it is beyond the scope of this project to investigate all of the relevant workforce housing tools as they arise, I will reference these tools in my white paper, albeit briefly.

The sustainability assessments for all six tools are not yet complete, but the evaluative questions are complete and were tested on one tool, land banks. The evaluative questions were written to assess the four dimensions of sustainability for each solution option, rather than individual tools. However, the evaluative questions, when answered using both a yes or no response and a qualifying explanation, still serve as viable tool for assessing the sustainability of each tool. This is done by providing the context in which the answer to each question is yes. In essence, the questions prompt you to think about the tool in a holistically sustainable way by requiring you to combine each tool with other policies, practices, and tools to create a complete sustainable workforce housing solution.

While the original intent for this project was to provide stakeholders with examples and guidance on how to meet the demand for missing middle housing in the Valley, I unintentionally created many new questions. I identified and detailed various tools for regulating, financing, locating, and partnering to develop market rate workforce housing, however many of those tools are worthy of in-depth research to determine how they can best be used in Arizona. An alternative, and incredibly valuable, avenue for further detailed research would be to design a project focused specifically on financing models for workforce housing. A future MSUS student could design an applied project focused on interviewing city staff, economists, and lenders alone to determine viable financial models for Arizona. Over the course of the last year, I have heard countless market rate and affordable housing developers, planners, advocates, city staff, and public officials say that workforce housing projects do not pencil out financially. Given the need for these moderately-priced, attainable units and the breadth of innovative strategies emerging with new technology and policies, I believe we can, and must, change this sentiment.

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REFERENCES

- (AADTF) City of Austin Anti-Displacement Task Force. (2018). Recommendations for action. Retrieved from http://www.austintexas.gov/sites/default/files/files/Housing/Anti-Displacement_Task_Force_Final_Recommendations_and_Report.pdf
- (AAPI) The National Coalition for Asian Pacific American Community Development and The Council for Native Hawaiian Advancement (2016). *Asian American & Pacific Islander Anti-Displacement Strategies #OurNeighborhoods*. Retrieved from <https://www.nationalcapacd.org/data-research/neighborhoods-asian-american-pacific-islander-anti-displacement-strategies/>
- Aboelata, M.J., Bennett, R., Yañez, E, Bonilla, A., & Akhavan, N. (2017). *Healthy Development Without Displacement: Realizing the Vision of Healthy Communities for All*. Oakland, CA: Prevention Institute. Retrieved from <https://www.preventioninstitute.org/publications/healthy-development-without-displacement-realizing-vision-healthy-communities-all>
- Abu-Khalaf, A. (2018). Proven local strategies for expanding the supply of affordable homes and addressing cost challenges. *Enterprise Community Partners, Inc.* Retrieved from <https://www.enterprisecommunity.org/resources/proven-local-strategies-expanding-supply-affordable-homes-and-addressing-cost-challenges>
- Alexander, F. S. (2011). Land banks and land banking. *Center for Community Progress*. Retrieved from <https://www.communityprogress.net/community-progress-publications-pages-412.php>
- All-In Cities (2019). All-In Cities Policy Toolkit. *PolicyLink*. Retrieved from <https://allincities.org/toolkit>
- Associated General Contractors (AGC). (2018). Construction material costs increase 7.4 percent, as contractors continue to be squeezed by tariffs and rising fuel prices. Retrieved from <https://www.agc.org/news/2018/10/10/construction-material-costs-increase-74-percent-contractors-continue-be-squeezed>
- Barbier, E. B. (1987). The concept of sustainable economic development. *Environmental conservation*, 14(2), 101-110.
- Bardaka, E., Delgado, M. S., & Florax, R. J. (2018). Causal identification of transit-induced gentrification and spatial spillover effects: The case of the Denver light rail. *Journal of Transport Geography*, 71, 15-31.
- Cappellano, F., & Spisto, A. (2014). Transit oriented development & social equity: From mixed use to mixed framework. In *Advanced Engineering Forum* (Vol. 11, pp. 314-322). Trans Tech Publications.
- Checker, M. (2011). Wiped out by the “greenwave”: Environmental gentrification and the paradoxical politics of urban sustainability. *City & Society*, 23(2), 210-229.
- Clay, P. L. (1979). *Neighborhood renewal: middle-class resettlement and incumbent upgrading in American neighborhoods*. Free Press.
- de Leon, E., & Schilling, J. (2017). Urban blight and public health: Addressing the impact of substandard housing, abandoned buildings, and vacant lots. *Urban Institute*. Retrieved from <https://www.urban.org/research/publication/urban-blight-and-public-health>
- Ducker, A., Mangold, K., & Lynn, L. *Attainable housing: Challenges, perceptions, and solutions*. Washington, DC: Urban Land Institute. <https://americas.uli.org/attainable-housing/>

- Fan, Y., Guthrie, A., & Levinson, D. M. (2010). Impact of light rail implementation on labor market accessibility: A transportation equity perspective. *Journal of Transport and Land use*, 5(3).
- Gibson, R. B. (2006). Sustainability assessment: basic components of a practical approach. *Impact assessment and project appraisal*, 24(3), 170-182.
- Heins, P., & Abdelazim, T. (2014). *Take it to the bank: How land banks are strengthening America's neighborhoods*. Washington, DC: Center for Community Progress.
- Hoyt, H. (2020). More for less? An inquiry into design and construction strategies for addressing multifamily housing costs. *Joint Center for Housing Studies of Harvard University*. Retrieved from <https://www.jchs.harvard.edu/research-areas/working-papers/more-less-inquiry-design-and-construction-strategies-addressing>
- Joint Center for Housing Studies of Harvard University (JCHS) (2019). *The state of the nation's housing 2019*. <https://www.jchs.harvard.edu/state-nations-housing-2019>
- Kingsella, M. (2019). Housing underproduction in Arizona: Quantifying the impact of accessible growth [PowerPoint slides]. *Up for Growth*. Retrieved via email.
- Lamorgese, L., & Geneletti, D. (2013). Sustainability principles in strategic environmental assessment: A framework for analysis and examples from Italian urban planning. *Environmental Impact Assessment Review*, 42, 116-126.
- Los Angeles County Department of Public Health (LACDPH) (2015). *Social determinants of health: Housing and health in Los Angeles County*. Retrieved from http://publichealth.lacounty.gov/ha/reports/LAHealthBrief2011/HousingHealth/SD_Housing_Fs.pdf
- Metropolitan Area Planning Council (MAPC) (2014). *Middle-income housing: Demand, local barriers to development, & strategies to address them in select inner core communities*. Retrieved from <http://www.mapc.org/wp-content/uploads/2017/09/middleincomehousing.pdf>
- National Housing Conference (NHC) (2017). Land Banks and Community Land Trusts. Retrieved from <https://www.nhc.org/policy-guide/land-based-solutions/land-banks-and-community-land-trusts/>
- National Low Income Housing Coalition (NLIHC) (2019a). 2019 Arizona housing profile. Retrieved from https://nlihc.org/sites/default/files/SHP_AZ.pdf
- National Low Income Housing Coalition (NLIHC) (2019b). Out of reach 2019: Arizona. Retrieved from <https://reports.nlihc.org/oor/arizona>
- National Multifamily Housing Council (NMHC) (2019). *The housing affordability toolkit*. Retrieved from <https://housingtoolkit.nmhc.org/>
- Opticos Design, Inc. (OD) (2020). What is Missing Middle. Retrieved from <https://missingmiddlehousing.com/about>
- Peterson, E. (2016). Overcoming barriers to affordable housing in Colorado: Creative solutions for developers, public officials, and housing advocates. *Urban Land Institute Colorado*. Retrieved from <https://colorado.uli.org/download-ulis-new-affordable-housing-report-free-read-highlights/>
- Pfeiffer, D., Pearthree, G., Ehlenz, M. M. (2019). Inventing what Millennials want downtown: housing the urban generation in low-density metropolitan regions. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 12(4), 433-455, DOI: 10.1080/17549175.2019.1626267

- PolicyLink (2015). *The Equity Manifesto*. Retrieved from <https://www.policylink.org/about-us/equity-manifesto>
- Pollack, S., Bluestone, B., & Billingham, C. (2010). Maintaining diversity in America's transit-rich neighborhoods: Tools for equitable neighborhood change. *New England Community Developments*, 2010(1), 1-6.
- Robinson, J., Khidekel, I. & Balaños, S. (2019). Workforce & affordable housing: A ripe environment for double bottom line returns. *Bridge Investment Group*. Retrieved from <https://www.bridgeig.com/wp-content/uploads/2019/08/WFAH-White-Paper-A-Double-Bottom-Line-Strategy.pdf>
- Rosenthal, E. C. (2019). *A development perspective on creating workforce rental housing proximal to major employment centers* (Doctoral dissertation, Massachusetts Institute of Technology). Retrieved from <https://dspace.mit.edu/handle/1721.1/123602>
- Sundrop Farms (2016). Hi-Tech Greenhouse Production: Port Augusta, Australia. Retrieved from Dr. Katja Brundiers of Arizona State University via Canvas.
- Topalovic, P., Carter, J., Topalovic, M., & Krantzberg, G. (2012). Light rail transit in Hamilton: Health, environmental and economic impact analysis. *Social Indicators Research*, 108(2), 329-350.
- Way, H., Mueller, E., & Wegmann, J. (2018) Uprooted: Residential displacement in Austin's gentrifying neighborhoods and what can be done about it. *The University of Texas at Austin*. Retrieved from <https://sites.utexas.edu/gentrificationproject/..austin-uprooted-report-maps/>
- Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004). The disaster pressure and release model. *At the risk. Natural hazards, people's vulnerability and disasters*, 49-86.
- World Economic Forum (WEF) (2019). *Making affordable housing a reality in cities*. Retrieved from <https://www.weforum.org/whitepapers/making-affordable-housing-a-reality-in-cities>
- World Health Organization (WHO) (2014). Constitution of the World Health Organization. In *Basic Documents* (48thed.), 1-19. Geneva, Switzerland: Author.
- Zuk, M., Bierbaum, A. H., Chapple, K., Gorska, K., & Loukaitou-Sideris, A. (2018). Gentrification, displacement, and the role of public investment. *Journal of Planning Literature*, 33(1), 31-44.