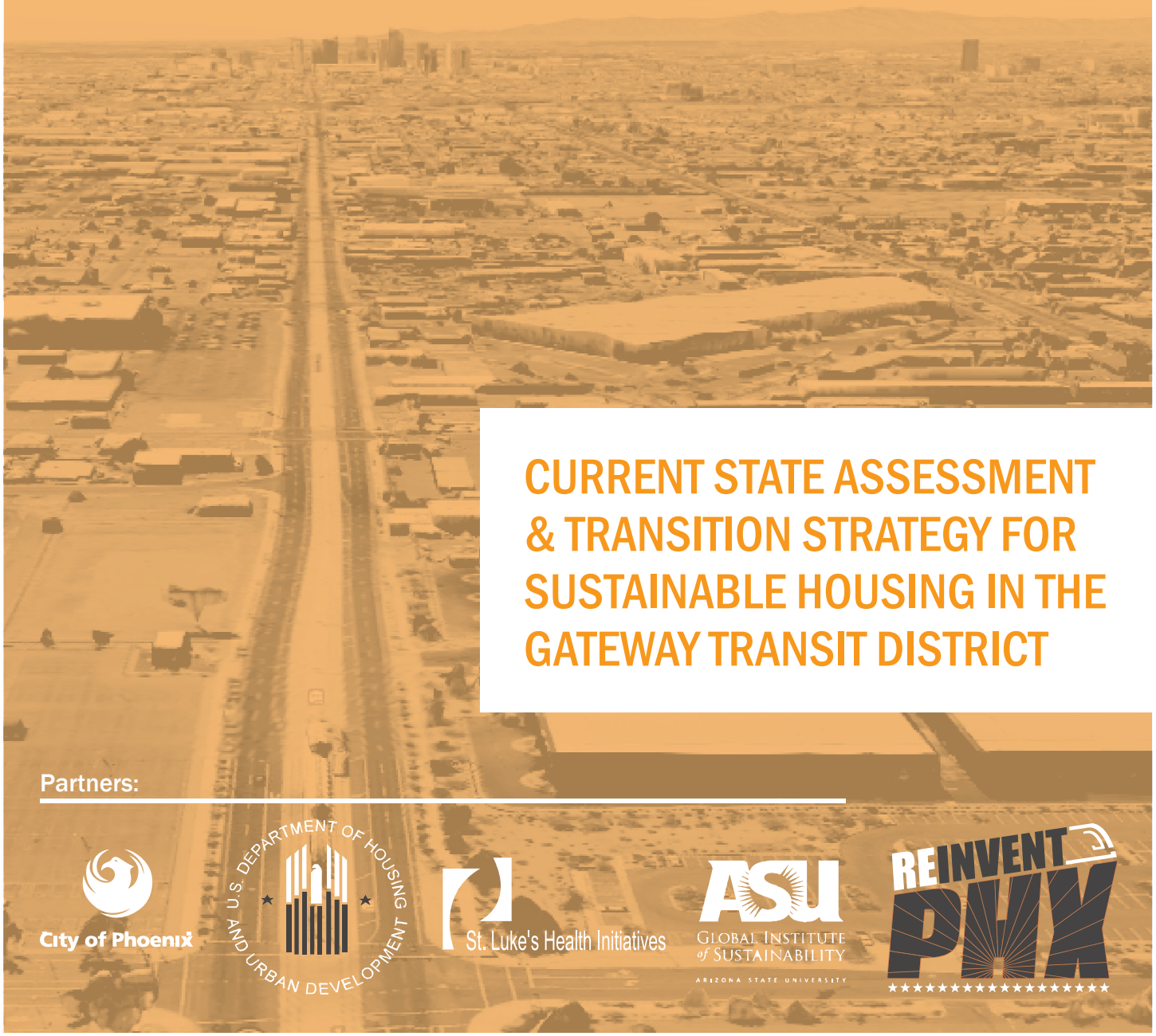
REINVENT PHOENIX



CURRENT STATE ASSESSMENT & TRANSITION STRATEGY FOR SUSTAINABLE HOUSING IN THE GATEWAY TRANSIT DISTRICT

Partners:

City of Phoenix

U.S. Department of Housing and Urban Development

St. Luke's Health Initiatives

ASU Global Institute of Sustainability, Arizona State University

REINVENT PHX

Current State Assessment and Transition Strategy for Sustainable Housing in the Gateway District, Phoenix

Report submitted to the City of Phoenix Planning and Development Department by the ASU-SOS Team for the project grant "Reinvent Phoenix – Cultivating Equity, Engagement, Economic Development and Design Excellence with Transit-Oriented Development", funded by the U.S. Department of Housing and Urban Development (HUD)

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Executive Summary

Sustainable housing strives for diverse, healthy, affordable, socially inclusive, resource-efficient, and culturally sensitive housing. This report's current state assessment is based on five goals of sustainable housing, derived from sustainability and livability principles:

1. Meet demand with adequate housing options
2. Provide sufficient quality of housing and promote healthy housing conditions
3. Secure affordability of housing
4. Conserve natural resources in homes
5. Maintain valuable cultural and historical character

A small set of indicators and targets operationalize each goal (see the table following this executive summary). Based on the data collected for this report, residents' perspectives, and U.S. Department of Housing and Urban Development's livability principles, the current housing conditions in the Gateway District are unsustainable in each of the five goal domains, although there are some positive aspects:

Demand is *not currently met with adequate housing options*. Vacancy rates for owned and rented units are above the sustainable threshold, but housing options available to elderly residents is reasonably close to their share of the city's population.

Current quality of housing is poor and unhealthy housing conditions are observable. The District has low average housing fitness (roof, siding, landscape issues), with almost a quarter of units at very low fitness levels. Some units lack basic electricity or other energy supply. Low incomes, housing age, and absentee landlordism drive additional housing fitness concerns, such as mold and pests. Some homes are affected by pollution (vapor intrusion) from the M52 Superfund site.

Currently, the District struggles with several housing affordability challenges. Average housing costs are relatively low, but this comes at the price of low-quality housing (see Goal 2). Although 74—92% of the housing stock is affordable for a family earning 80% of area median income, the average median income of Gateway residents is only 50% of area median income. There are other high-cost burdens for current Gateway residents, who spend over 20% of their income on transportation and 8—12% on energy. For many households, housing size and high costs result in rates of overcrowding and severe overcrowding that clearly surpass sustainable thresholds.

The current state of maintaining valuable cultural and historical character is ambivalent. Neighborhood stability is fairly high with more than 20% of families residing in the District for more than 10 years, while historical preservation falls short of the sustainable target.

Data from stakeholder engagements in the District confirm the assessment findings; yet, they emphasize them differently. In particular, vacancy rates are perceived as high; the average unit visitability is seen as low; housing fitness and indoor air quality (M52 Superfund site) are considered low; and, overcrowding is seen as a challenge. Regarding affordability, the perception is that low-cost housing in the District is also low quality. Though conserving natural resources and historical preservation also pose challenges, stakeholder input has prioritized affordability and health above these challenges.

In summary, the District is in need of adequate and affordable housing options of sufficient quality with good environmental performance (energy efficiency) that maintain valuable cultural and historical character. Thereby, tradeoffs between different housing features require special attention when crafting sustainable housing visions and strategies. For example, cooling homes improves health, but also increases energy costs. Similarly, high fitness housing is safer, but less affordable.

Three District housing challenges are of highest priority: meeting demand with adequate options; providing sufficient housing quality and healthfulness; and affordability. The following table operationalizes these goals with specific targets and distances-to-target for the strategy.

The transition strategy herein seeks to achieve the above targets with new construction, rehabilitation, and adaptive reuse interventions that detail actions, resources, potential barriers, and specifics on necessary investments.

Indicator	Sustainability Target (Range)	Current Data	Distance-to-target
Goal 1 – Current state of meeting demand with adequate housing options			
Options for elderly	8.4% PHX = 1091 units	6.5% = 841 units	1.9% / Low = 250 units
Goal 2 – Current state of providing sufficient quality of housing and promoting healthy housing conditions			
Basic amenities	<0.1%	1.4% = 73 units	1.4 / High = 1,215 units
Fitness	<0.1%	23% = 1,215 units	23% / High = 1,215 units
Goal 3 – Current state of securing affordability of housing			
Regional affordability	100% = 5282 units	83% = 4445 units	17% = 837 units

New Construction Intervention: New construction of multifamily housing in the 24th Street Station area and along Van Buren Street, and of single-family homes in the Wilson and Sunbeam neighborhoods, can achieve 250 of the requisite 1,215 highly affordable units that take advantage of new codes supporting healthy, green, and visitable homes. The following actions, among others, will be necessary:

- Pass predictable form-based code zoning along Van Buren and 24th Streets, and around the 24th Street and potential new 32nd Street station areas.
- Enlist a marketing and real estate development professional to support new construction initiatives in the District.
- Develop an affordable housing pilot project on 38th Street that provides proof of concept, and incentivizes further investments.
- Make progress on economic development, green systems, health, and mobility strategies that will support further investment in sustainable housing.

Rehabilitation and Revitalization Intervention: Rehabbing single- and multifamily homes, especially the 213 units with very low fitness, can contribute to the requisite 1,230 affordable units. The following actions, among others, will be necessary:

- Adjust zoning and ordinances to support affordability, accessibility, health, and LEED standards.
- Allocate resources to city departments and non-profits to rehab affordable units.
- Develop successful pilot rehabilitation projects in Sky Harbor, Wilson, and Sunbeam.
- Fight displacement with mechanisms for homeowners to upgrade and keep their homes.

Adaptive Reuse Intervention: Adaptive reuse of motels on Van Buren Street and warehouses south of Washington Street into multifamily homes can contribute to the requisite 1230 affordable units. The following actions, among others, will be necessary:

- Market motel and warehouse adaptive reuse opportunities under a Chicanos por la Causa capacity building campaign.
- Allocate resources for adaptive reuse of affordable units.
- Create an affordable transit-oriented housing pilot project on Van Buren Street.

The strategy also includes a database of implementation tools (financing tools, partnerships, codes, capacity building, and incentives) available to implement each intervention. There is a 5-year action plan that details actions for critical early wins, and moving the District sustainable housing transition forward. In summary, the strategy seeks to guide the District towards housing that is diverse, healthy, affordable, socially inclusive, resource-efficient, and culturally sensitive through critical investments in new construction, rehabilitation, and adaptive reuse.

The assessment table below uses a color rating system. Red indicates that existing conditions fall short of the sustainable target. Orange and yellow indicate different levels of non-compliance. Green indicates that existing conditions either meet or exceed the sustainability target.

Gray indicates that an explicit threshold is not available (NA), or there is no data for that indicator (ND).

Summary table of indicators, targets, current data, and assessments [For details see Chapters 3 & 4]

Indicator	Sustainability Target (Range)	Current Data	Distance-to-target	Assessment
Goal 1 – Current state of meeting demand with adequate housing options				
Vacancy rate	>1.5 and <4% >6 and <10%	5.9% 17.7%	1.9% / Low 7.7% / High	
Options for elderly	+/- equal distrib. (8.4% PHX)	6.5%	1.9% / Low	
Visitability	100%	15%	85% / High	
Goal 2 – Current state of providing sufficient quality of housing and promoting healthy housing conditions				
Basic amenities	<0.1%	1.4%	1.4 / High	
Fitness	4.5 <0.1%	3.0 23%	1.5 / High 23% / High	
Landscape quality	>50 GD/HH	66 GD/HH	Fulfilled (+16 GD/HH)	
Indoor air quality	<0.1%	[Indoor vapor data in OU2]	Exceed RBSLs	
Water quality	<0.1%	Minimal	Fulfilled	
Noise	<0.1%	ND	ND	
Goal 3 – Current state of securing affordability of housing				
Overcrowding	<5% <0.1%	9.1% 3.1%	4.1% / High 3.1% / High	
Regional affordability	Owned: 100% Rented: 100%	74% (51%) 92% (82%)	26% (49%) / High 8% (18%) / High	
District affordability	Owned: 80% Rented: 80%	47% 58%	33% / High 22% / High	
Poverty affordability	44%	Owned: 38% Rented: 27%	6% / Low 7% / Low	
Housing costs	<30%	29.1%	Fufilled (-0.9%)	
Transportation costs	<15%	23.5%	8.5% / High	
Energy costs	<6%	8—12%	2-6% / Medium	
Low-income housing cost burden	<0.1%	87%	87% / High	
Goal 4 – Current state of conserving natural resources				
Renewable energy	100%	<1%	99% / High	
Water consumption	<90 GPCD	58 GPCD	Fulfilled (-32 GPCD)	
Reused materials	>75%	ND	ND	
Local materials	>25%	ND	ND	
LEED certification	>25%	Minimal	High	
Energy-efficiency	>50%	ND	ND	
Energy consumption	ND	ND	ND	
Goal 5 – Current state of maintaining valuable cultural and historical character				
Neighborhood stability	>20%	21%	Fulfilled (+1%)	
Historical character	>2% >20%	0.6% 5%	1.4% / Med 15% / High	

Correspondence to Scope of Work

Scope-of-Work Items	Corresponding Report Chapter
Task 3.1 District Housing Assessment	Chapters 4 and 5
Sub-Task 3.1.a: Data Collection	
Demographics (ages, incomes, family status, etc.)	Appendix
Occupations	Appendix
Consumer expenditures	Appendix
Household sizes	Appendix
Transportation costs	Chapters 3.3 and 4.3; Appendix
Car ownership	Appendix
VMT	In Progress
Housing conditions	Chapters 3.2 and 4.2; Figure 4; Appendix
Housing supply and categories	Chapters 3.1 and 4.1; Appendix
Housing costs and categories	Chapters 3.3 and 4.3; Table 10; Appendix
Renters	Chapters 3.1, 3.3, 4.1, and 4.3; Appendix
Owners	Chapters 3.1, 3.3, 4.1, and 4.3; Appendix
Housing vacancy	Chapters 3.1 and 4.1; Appendix
Foreclosures	In Progress
Housing construction pipeline	Chapter 7
Resident input	Vision Report
Sub-Task 3.1.b: Data Analysis	
Demographics	Appendix
Housing + transportation costs	Chapters 3.3 and 4.3; Appendix
Housing Diversity Index	Appendix
Housing conditions	Chapters 3.2 and 4.2; Appendix
Overcrowding	Chapters 3.3 and 4.3; Appendix
Resident input	Vision Report
Housing preservation candidates	Chapters 3.5 and 4.5, Appendix
Sub-Task 3.1.c: GIS Analysis	
Population density maps	Appendix
Housing density maps	Appendix
Housing type maps	Appendix
Household sizes maps	Appendix
Housing + transportation costs maps	Appendix
Housing conditions maps	Appendix
Sub-Task 3.1.d: Housing Assessment Toolkit	Chapters 1.3, 1.4, 3, 4, and 5
Task 3.3 District Housing Strategies	Chapters 6 and 7
Sub-Task 3.3.a: Housing Demand Forecast	Chapter 6.1
Sub-Task 3.3.b: Recommended Policy Changes	Chapter 7
Sub-Task 3.3.c: Recommended Equitable Housing Investments	Chapter 7

Chapter 1 – Introduction

1.1. Profile of the Gateway District

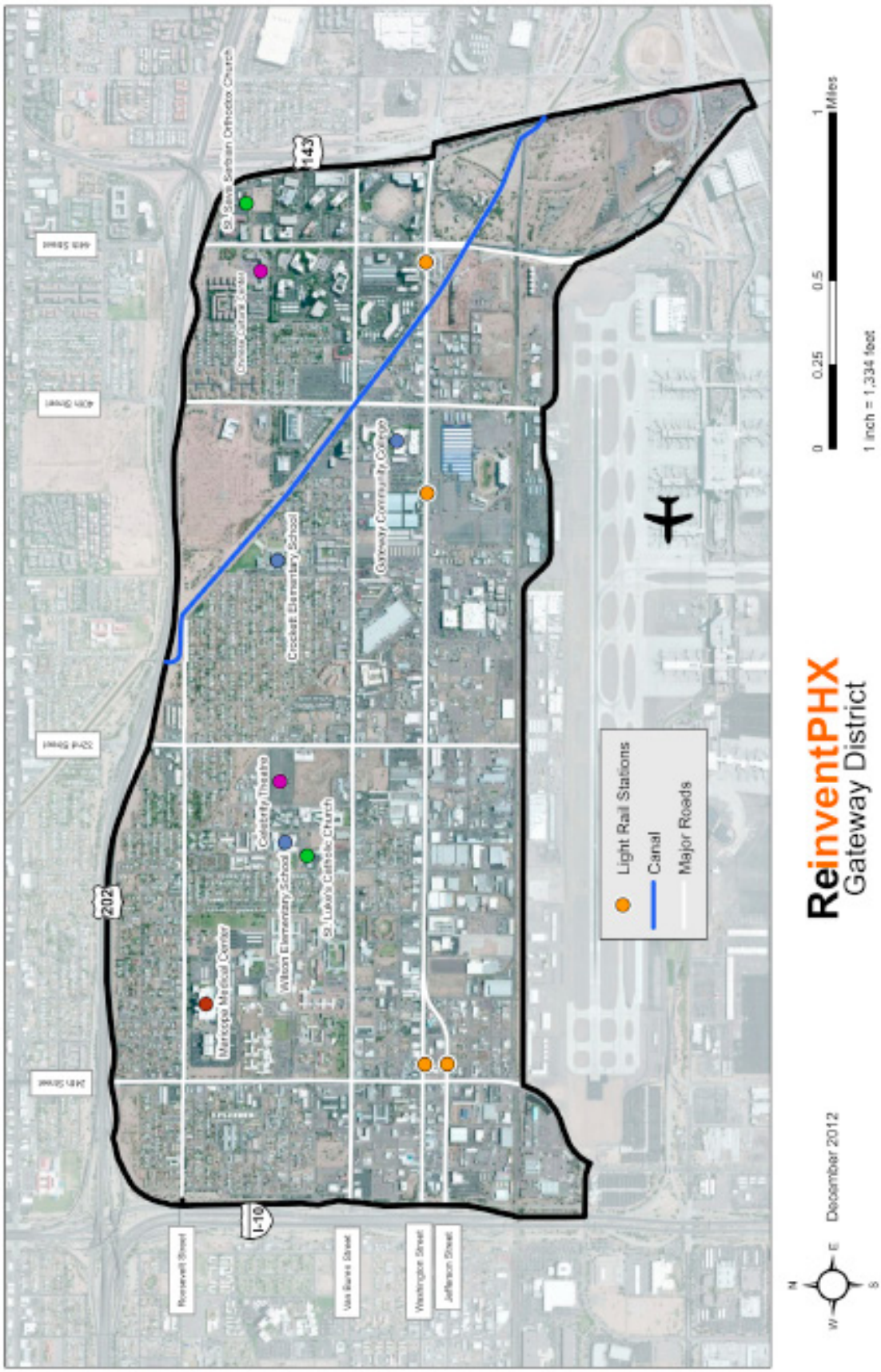
The Gateway Transit District is the easternmost of Reinvent Phoenix's six light rail corridor Districts (Johnson et al. 2011). It is located just north of the Sky Harbor International Airport and is bound by the I-10 to the west, the Loop 202 (Red Mountain Freeway) to the north, the State Route 143 (the Hohokam Expressway) to the east, and East Air Lane to the south (see District map in Figure 1 below). This District has the opportunity to become a central nexus and hub of urban activities in the Phoenix Metropolitan area due to its location at the intersection of major highways, the Grand Canal, historic Van Buren Street, the light rail, and Sky Harbor International Airport with its new Sky Train. This segment of the light rail corridor contains three light rail stations at: 24th Street/ Washington Street, 38th Street/Washington Street and 44th Street/Washington Street. With these three stations (and the possibility of an additional station) this area is a major transportation hub with good potential for transit-oriented development. The Gateway District falls into two of Phoenix's urban villages: most of the District comprises about one-fifth of the Central City urban village, with the District's northeast corner comprising about one-twentieth of the Camelback East urban village.

The Gateway District has undergone significant changes since the 1970s, when it was a vibrant commercial and residential corridor. The opening of the regional freeway system reduced the importance of Van Buren Street, previously a main thoroughfare of the District and a key east-west connection to the East Valley. This caused a decline in activity in the area through the 1980s and 1990s, resulting in lowered property values, high vacancies, and blight. At the same time, the encroachment of industrial uses and growth of the Sky Harbor International Airport to the south infringed on Gateway's previous residential and commercial character. Due to its relatively inexpensive single-family homes and newer apartments and condos, however, its population increased from ca. 11,000 in 1990 to ca. 13,000 in 2010. About half of the population is younger than 25 years. After decades of divestment and conversion, ca. 300 acres – 13% of the area – lies vacant. Gateway's land uses are a mix of industrial and residential areas typical of older urban neighborhoods. They also reflect a lack of public investment in its neighborhoods' safety and quality of life. Only 0.1% of the area is park (1.3% for the City of Phoenix).

Using the guiding concept of sustainable housing that strives for diverse, healthy, affordable, socially inclusive, resource-efficient, and culturally-sensitive housing (Edwards, 2000; Wheeler, 2009), the Gateway District is confronted with various challenges. The number of total housing units is 5,282, with 4,215 occupied (28.5% owner occupied and 71.5% renter occupied) and 1,067 or about 20% vacant. This housing stock does not offer sufficient diversity to accommodate the demand of various resident groups, including families, singles, children, elderly, and people with disabilities. There is rampant overcrowding and housing cost burdens are above acceptable levels by most definitions. The age and fitness of the housing stock poses health risks to some residents with issues regarding indoor air quality, water quality, and noise. Considering the high rate of poverty and unemployment in the District, there are serious concerns regarding housing affordability. This issue seems to be particularly challenging as about 39% of the population did not obtain a High School diploma. The low quality of the housing stock also poses challenges regarding resource use, negatively affecting emission the profile of the District and adding costs for energy and water to the already constrained household budgets across the District.

This report details these issues and provides an overview of relevant intervention points for urgently needed policies and other improvement strategies. The introduction continues with an overview of the Reinvent Phoenix planning process, the core definitions of sustainable housing, and the objectives of the assessment and strategy studies. The next chapter describes the assessment methodology (Chapter 2). The following chapter spells out the sustainable housing goals used in the assessment (Chapter 3). The key results of the assessment are organized by the goals (Chapter 4). A set of causal maps articulates potential intervention points and system features for the strategy-building module (Chapter 5). Other strategy inputs from the visioning study follow (Chapter 6). The strategy itself is then detailed (Chapter 7). Finally, the report summarizes conclusions about the strategy building process (Chapter 8).

Figure 1. Major Gateway District streets and landmarks



1.2. Profile of the "Reinvent Phoenix" Grant

"Reinvent Phoenix" is a City of Phoenix project in collaboration with Arizona State University and other partners, and funded through U.S. Department of Housing and Urban Development's Sustainable Communities program, for the period 2012—2015. This program is at the core of U.S. Department of Housing and Urban Development's mission to "create strong, sustainable, inclusive communities and quality affordable homes for all." It specifically strives to "reduce transportation costs for families, improve housing affordability, save energy, and increase access to housing and employment opportunities" and to "nurture healthier, more inclusive communities" (Office of Sustainable Housing and Communities, 2012). The program explicitly incorporates principles and goals of sustainability/livability (HUD/DOT/EPA, 2009):

1. Enhance economic competitiveness
2. Provide more transportation choices
3. Promote equitable, affordable housing
4. Support existing communities
5. Coordinate and leverage federal policies and investment
6. Value communities and neighborhoods.

In this spirit, Reinvent Phoenix aims to create a new model for urban development in Phoenix. The goals for this new model are to improve quality of life, conserve natural resources, and maintain desirability and access for the entire spectrum of incomes, ages, family sizes, and physical and developmental abilities along the light rail corridor. Reinvent Phoenix aspires to eliminates physical and institutional barriers to transit-oriented development. To do so, the grant will work to catalyze livability and sustainability through capacity building, regulatory reform, affordable housing development, innovative infrastructure design, economic development incentives, and transformational research and planning.

Participatory research design ensures that a variety of stakeholder groups identify strategic improvements that enhance safe, convenient access to fresh food, healthcare services, quality affordable housing, good jobs, and education and training programs. Reinvent Phoenix focuses on six topical elements: economic development, green systems, health, housing, land use, and mobility (corresponding to the Livability Principles). These planning elements are investigated in five transit Districts (from east to west and south to north): Gateway, Eastlake-Garfield, Midtown, Uptown, and Solano. Planning for the Downtown District of the light rail corridor is excluded from Reinvent Phoenix because of previously completed planning efforts, partly using transit-oriented development ideas.

Reinvent Phoenix is structured into planning, design, and implementation phases. The project's planning phase involves building a collaborative environment among subcontracted partners, including Arizona State University, Saint Luke's Health Initiatives, Discovery Triangle, the Urban Land Institute, Local First Arizona, Duany Plater-Zyberk & Company, Sustainable Communities Collaborative, and others. While the City of Phoenix coordinates these partnerships, Arizona State University and Saint Luke's Health Initiatives are working with residents, business owners, landowners, and other relevant stakeholders in each of the grant's five transit Districts. This effort will assess the current state of each District, as well as facilitate stakeholder expression of each District's sustainable vision for the future. Finally, motivated actors in each District will co-create step-by-step strategies to move toward those visions. Transit District Steering Committees, formed in the planning phase, will host capacity building for their members, who will shepherd their Districts through the remaining Reinvent Phoenix phases.

City of Phoenix staff and Duany Plater-Zyberk & Company will lead the design phase. Designs for canal activation, complete streets, and form-based code will complement the compilation of a toolbox for public-private partnerships to stimulate economic development along the light rail corridor. The design phase will take its cues from the public participation in the planning phase, and maintain ongoing monthly contact with Transit District Steering Committees to ensure the visions of each District are accurately translated into policy and regulations. These steps will update zoning, codes, regulations, and city policies to leverage the new light rail system as a major asset. The design phase is crucial for preparing an attractive environment for investment and development around the light rail.

Finally, the implementation phase will use the city's partnerships with the Urban Land Institute, Local First

Arizona, and Sustainable Communities Collaborative to usher in a new culture of development in Phoenix. With the help of all partners, transit-oriented development can be the vehicle to renew Phoenix's construction industry, take full advantage of the light rail as a transformative amenity, and enrich Phoenix with a livable and dynamic urban fabric.

1.3. Sustainable Housing Research

One sub-project of Reinvent Phoenix focuses on housing and aims to develop *diverse, healthy, affordable, socially inclusive, resource-efficient, and culturally-sensitive housing along the light rail in the District. The housing project fully aligns with U.S. Department of Housing and Urban Development's Sustainable Communities program goals, as stated above (see Livability Principle No. 3, above).*

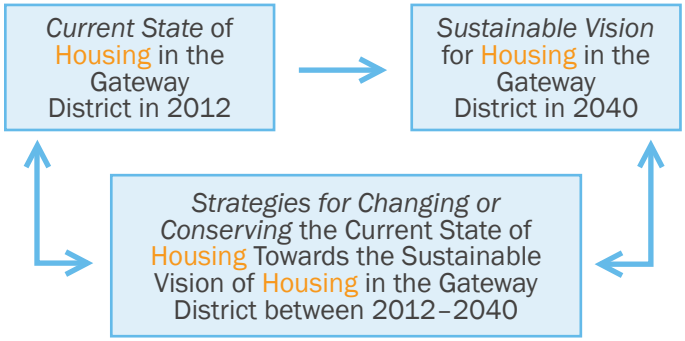
Sustainable housing is specified in the following five goals (Bratt, 2002; Astleithner et al., 2004; Hack et al., 2009; Wheeler, 2009; Bolt et al., 2010):

1. Meet demand with adequate housing options
2. Provide sufficient quality of housing and promote healthy housing conditions
3. Secure affordability of housing
4. Conserve natural resources in homes
5. Maintain valuable cultural and historical character

In pursuit of these goals, we employ a transformational planning framework (Wiek, 2009; Johnson et al., 2011), conducting sustainable housing research in three linked modules. We start with a thorough assessment of the current state of housing in 2010/2012 against principles of livability and sustainability (current state assessment); in parallel, create and craft a sustainable vision for housing in 2040 (visioning); and finally develop strategies for changing or conserving the current state of housing towards the sustainable vision of housing between 2012 and 2013 (strategy building). The framework is illustrated in Figure 2.

Because of the close link between housing, land use, mobility, and other planning elements, the central meaning of housing often remains poorly defined in housing assessments. With the intent to avoid duplications, overlap, and confusion, we follow in this assessment report the following definition: *Housing refers to the structural and functional features of homes (residential buildings) in a given District. Consequentially, features of a District that pertain to the connection and distribution of homes and other buildings, open spaces, infrastructures, services, etc. will be addressed under the land use planning element.*[1]

Figure 2. Transformational sustainability planning framework (Wiek, 2009)



1.4. Objectives of the Current State Assessment Study

The current state assessment is a structured procedure that creates a detailed and normative account of the existing conditions of housing in the District, informed by livability and sustainability principles. The assessment creates a solid foundation and reference point for the strategy building process to achieve sustainable housing.

Unlike conventional housing assessments, which are largely descriptive and analytical, the research documented here is functionally linked to the strategy-building module. Conventional assessments often provide a large number of arbitrary data sets, with unclear reference to the main issues being analyzed. They also tend to lack a meaningful normative reference against which the data is being assessed. In this report, there are transparent indications and justifications of the degree of sustainability or unsustainability of the current state of housing. In accordance with the mandate of Reinvent Phoenix to contribute to sustainable community development, adapt to rising temperatures, increase resiliency to climate change, and improve energy- and water-efficiency of buildings and infrastructure, this report

[1] Examples: current zoning; current spatial distribution of housing in relation to light rail stations; current access to services; etc.

takes an explicit *normative perspective on housing, based on sustainability and livability principles (Gibson, 2006; HUD/DOT/EPA, 2009).*

Contrary to conventional assessment practice, this report's assessment only presents information that can directly be linked to the key guiding question: How sustainable/unsustainable is the current state of housing in the District? We have excluded from the current state assessment (Chapters 3—5) all issues that pertain to future developments of housing in the District. The issue of housing growth trends and market forecasts are addressed in the housing strategy (Chapters 6—7), as they are chiefly concerned with steering that housing future in a more sustainable and livable direction.[2]

The core objectives of the current state assessment are:

1. A comprehensible set of goals for sustainable housing

2. A comprehensible set of performance indicators that operationalize the goals and facilitate detailed description of the current state of housing

3. Targets for all performance indicators that operationalize the goals and facilitate assessment of the sustainability/unsustainability of the current state of housing

4. Sustainability assessment of the current state of housing through comparison of indicators to their identified targets (distance-to-target)

5. Causal problem maps for the performance indicators that identify causal structures and drivers, and thereby suggest promising intervention points for change strategies

Additional objectives include:

1. To develop a process and content template for current state assessment research that can be reproduced in the other four transit Districts and thus guide the Reinvent Phoenix current state assessment activities over the coming years

2. To enhance capacity in current state assessment for planning professionals and collaborating partners to use in subsequent initiatives and projects

3. To enhance capacity in current state assessment for students and faculty to use in other research, teaching programs, and projects

1.5. Objectives of the Transition Strategy Study

The strategy presented in this report proposes interventions to address housing challenges, significantly improve the housing situation in the District, and achieve the vision and goals of sustainable housing (detailed in Wiek et al., 2012). In accordance with the mandate of Reinvent Phoenix to contribute to sustainable community development, adapt to rising temperatures, increase resiliency to climate change, and improve energy- and water-efficiency of buildings and infrastructure, this strategy study actively pursues the improvement of housing conditions, following sustainability and livability principles (Gibson, 2006; HUD/DOT/EPA, 2009).

The guiding question of the sustainable housing strategy study is: *What are evidence-based interventions to provide diverse, affordable, and healthy housing that conserves natural resources and promotes cultural and historical neighborhood character for all residents?*

The specific objectives are:

1. To link sustainable housing goals and targets to evidence-based interventions and investment options

2. To detail the interventions along with actions, actors, assets, coping tactics (for barriers) needed to achieve sustainable housing goals and targets

3. To highlight a set of investment options designed to achieve sustainable housing goals and targets

4. To compile a set of exemplary implementation tools that help implement the investment options

5. To outline a five-year action plan to implement the interventions and investments

[2] Example: future housing demand (e.g., based on development projects); anticipation of development conflicts because of preservation concerns related to clusters of historic residential properties; etc.

Additional objectives include:

1. To develop a process and content template for sustainable strategy development that can be reproduced in the other four transit Districts and thus guide the Reinvent Phoenix strategy development activities over the coming years

2. To enhance capacity in strategy development among planning professionals and collaborating partners to use in subsequent initiatives and projects

3. To enhance capacity in strategy development for students and faculty to use in other research, teaching programs, and projects

Chapter 2 – Research Design

2.1. Design of the Current State Assessment Study and Data Sources

The methodological approach employed in this study is based on the transformational planning framework illustrated in Figure 2. Following specifications for the current state assessment module, this report pursues the aforementioned objectives through three research streams:

1. Development of an assessment framework composed of normative goals, performance indicators, and targets (Chapter 3):

    a. Identification of a comprehensible set of goals for sustainable housing. This research is based on reviewing scientific literature and reference documents (Edwards, 2000; Chiu, 2004; Winston & Pareja Eastaway, 2008; HUD/TOD/EPA, 2009; Wheeler, 2009). Based on this initial review, we synthesized a large number of goals into a smaller set through systematic comparison and integration.

    b. Identification of a cohesive set of performance indicators that operationalize the goals and facilitate detailed description of the current state of housing. The indicators are largely determined through literature that suggests a clear link between general goals and measurable indicators (Winston & Pareja Eastaway, 2008; Vehbi et al., 2010).

    c. Identification of a target (or range) for each performance indicator that operationalizes the goals and facilitates assessment of the sustainability/unsustainability of the current state of housing. Indicators facilitate description of the current state through data collection. Yet, they are insufficient for operationalizing the goals of sustainability/livability. This requires targets (one for each indicator) that are discrete (quantitative or qualitative) thresholds (or ranges) that define, all together, sustainable housing (Wiek & Binder, 2005; Rockström et al., 2009; Machler et al., 2012). Due to insufficient research, this is often tedious and challenging (Hoernig & Seasons, 2004). For indicators lacking firm targets or thresholds in the literature, we rely on our team's expert opinions to make reasonable estimates. Indicators without clear targets are labeled as "not available" (NA).

2. Assessment of the sustainability/unsustainability of the current state of housing based on comparison of current state data (for each indicator) to the identified targets (distance-to-target). This shows how sustainable/unsustainable the current state of housing is in specific (for each indicator) and overall (aggregated) (Chapter 4).

3. Identification of the causal structure (drivers) of performance indicators, which reveals promising intervention points for change strategies. Causal assumptions are based on expert input and scientific literature; and, a system analysis explores linkages among all the indicators (Vester, 2008; Wiek et al., 2008). The final step defines the linkages between housing indicators quantitatively (strength of impact) and qualitatively (type of impact). Causal structure analysis is critical for strategy building, because performance indicators cannot be directly changed. Sustainable housing strategies must change the upstream drivers of indicators, which requires detailed knowledge of causal linkages (Chapter 5).

Most of the current state data used in the assessment comes from the decennial census and the American Community Survey series for 2007—2011. Depending on the specific data needed, a combination of data from census tract and block geographies was used. All census geographies were matched to the District boundaries using GIS intersection and area prorating techniques.

Arizona State University's Energize Phoenix project provided electricity usage data, and the City of Phoenix Water Department provided water consumption data. We fit these data to the selected geographies using the same area prorating method. We calculated other derived measures such as averages, medians, diversity indexes, and cost burdens.

Some data comes from the U.S. Department of Housing and Urban Development online Community Planning and

Development mapping tool (HUD, 2012). This tool groups data for all census tracts intersecting the Districts without area prorating, and therefore is not as accurate as the other data we provide. Data from this tool is labeled as "HUD tool."

Targets were developed using data and information from the literature on housing demographics, environmental performance, affordability, and other issues. In some cases where the literature was unclear and targets were not readily discernible, we used either the research team's expert opinions or declared that targets are not (yet) available (NA).

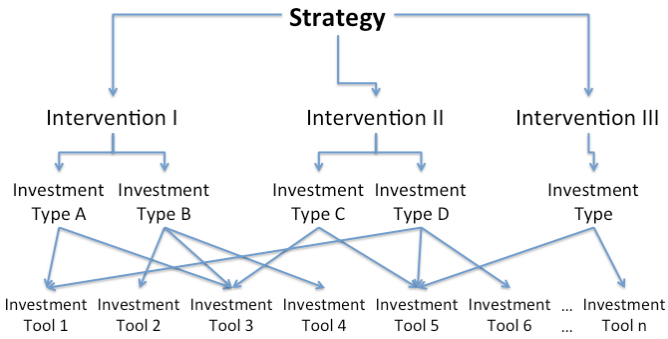
Phoenix's last housing fitness survey was conducted in 2004. We did not have the resources to do a complete survey. Instead, we used Google Street View to create rough fitness estimates for each District census tract. We sampled about 50 residential structures (single or multi-family) per tract (totaling 100—200/District). This sample has an error rate of around 10%, meaning a rating of 3.5 in this sample indicates a rating of 3.15—3.85 in a complete sample.

For chosen properties, we made separate ratings for roof, siding, and landscape conditions on a 1—5 scale. Well-maintained roofs (no signs of damage or age), siding (fully intact, painted, etc.), and landscape (well maintained, watered, etc.) received a "5." A score of "1" would indicate significant visible damage or lack of maintenance. We rated each structure in the sample three times, averaged the ratings, and used them for their respective census tracts.

2.2. Design of the Transition Strategy Study

We acknowledge that the term strategy is being used in a variety of contexts. In a research context a strategy is defined as *a set of interventions coordinated among different stakeholders with the intent to transforming the current state of a system (e.g., a city, a neighborhood, a company) into a sustainable one* (Kay et al., 2013). This report details the coordinated interventions necessary to achieve a sustainable state for housing in the District. Each intervention includes investments and implementation tools that residents, businesses, organizations, and city government need to employ in order to achieve the desired outcomes. Conceptually, we differentiate different levels of the strategy (Fig. 3)

Figure 3. Hierarchical structure of the strategy for sustainable housing



The methodological approach employed in this study is based on the transformational planning framework (Wiek, 2009). The specific procedures for building a transition strategy have been detailed in Wiek & Kay (2013) and Kay et al. (2013), and are here applied to sustainable housing as follows:

1. Summarizing the inputs or ingredients for the strategy, i.e., the current state assessment, the vision, and a theory of change. All three elements need to be specified so that progress can be measured. Key information includes gaps between the current state and trends for housing on the one hand, and future goals and targets (vision) on the other hand. For example, for the indicator "percentage of homes using renewable energy" the current state is <1% of housing units, but the target is >50%. The gap between the current state and the target specifies what the strategy needs to accomplish.

2. Developing a set of coordinated interventions to achieve desired outcomes. For the overall vision of sustainable housing, each of the major goal-specific interventions need to be identified and their coordination needs to get outlined. For example, to achieve the goal of providing healthy housing options for all residents in the District, the intervention of rehabilitation of houses with poor fitness seems promising. The transformational planning framework is goal oriented and thus the vision, the current state assessment, and the strategy all start with stating the goals of sustainable housing. Yet, the strategy aims at coordinating interventions that achieve multiple objectives at the same time. For example, the rehabilitation of houses does not only pursue enhancing housing fitness and

create healthy housing conditions, but can also contribute to the energy performance (conserve natural resources). Thus, from the perspective of implementation it is more useful to use the interventions as organizing principle, and design interventions in ways that they contribute to as many goals as possible. Thus, we describe each major intervention separately by:

a. Stating the goals and targets the intervention pursues.

b. Identifying the intervention points, i.e., drivers that cause the problematic current state. Systemic relevance of the intervention point and feasibility of intervention at this point are important criteria for the selection of intervention points. A potential intervention point could be the lack of enforcement of building codes that contribute to the current state of low housing fitness.

c. Specifying key components of each intervention, i.e., intervention actions, actors, available assets, resources needed, potential barriers, and implementation tools. Components can be identified through using best practices examples across the United States, interviews with city staff, residents, local experts, and academic literature.

d. Describing specific investment options that offer different pathways or investment options within an intervention. For example, the new construction intervention captures both construction of single-family as well as multifamily homes. For realizing an investment option, different implementation tools can be used.

e. Describing implementation tools, clustered in tools for financing, capacity building, partnerships, rules (codes), and incentives. We provide key information on the implementation tools, so that residents, developers, and city staff are able to select among available tools. Similar to interventions and investment options, the majority of tools can be used to implement multiple investments. For example, a community development corporation (partnership tool) can be used to support new construction of multifamily homes, or the adaptive reuse of motels into housing units.

3. Providing evidence for the effectiveness and efficiency of the proposed interventions, investments, and implementation tools. Evidence is required to ensure that intervention, investments, and implementation tools are selected that are likely to be capable of getting the job done. Local experts, academic literature, or cases of other cities can provide evidence.

4. Detailing actions for a specific 5-year action plan that detail the roles and responsibilities for residents, developers, and city staff, as well as for the Steering Committee.

Data for this strategy document comes from two primary sources:

1. Data inputs for the strategy are drawn from multiple sources as this study builds from the current state assessment and the visioning study. The specifics of these data sets are explained in the respective reports (Golub et al., 2013; Wiek et al., 2013).

2. Data about the core components of the strategy is based on input from local experts and through the review of academic literature.

Chapter 3 – Sustainable Housing Goals, Indicators, and Targets

Livability and sustainability are core framing concepts for U.S. Department of Housing and Urban Development's Sustainable Communities program, and therefore, the Reinvent Phoenix project. While this might be tangential for other housing studies, it is mandatory for the present housing assessment as part of the Reinvent Phoenix project. As stated in the Introduction, we follow in this assessment report the following definition of housing: *Housing refers to the structural and functional features of homes (residential buildings) in a given area.* Based on this definition, we define sustainable housing as follows (Edwards, 2000; Wheeler, 2009): *Sustainable housing is a state in which all residents in a given area can satisfy their needs for diverse, healthy, affordable, socially-inclusive, resource-efficient, and culturally-sensitive homes.* This chapter details the key features of sustainable housing, based on sustainability and livability literature.

In following sections, we define five sustainable housing goals, as well as related indicators and targets that have been articulated in various strands of the literature (e.g., Edwards, 2000; Chiu, 2004; Winston and Pareja Eastaway, 2008; Wheeler, 2009; Keall et al., 2010). These goals are:

1. Meet demand with adequate housing options
2. Provide sufficient quality housing and promote healthy housing conditions
3. Secure affordability of housing
4. Conserve natural resources in homes
5. Maintain valuable cultural and historical character

Recent research indicates that these goals are best pursued in concert, as they offer synergies among them (Kuholski et al., 2010; Garland et al., 2013).

We define the targets based on the literature, when such information is available. Where it is not, we rely on our team's expertise as well as consultations with other experts and stakeholders within our project. Accordingly, we include an assessment of our degree of confidence in the target; where there is clear expert opinion on sustainable targets, our confidence is high, while in those cases where we are relying on our judgment, we rate our confidence lower. We also must define the scope of application of these targets – some are tailored to the specific District, while others apply equally to all Districts.

3.1. Goal 1 – Meet demand with adequate housing options

The first goal of sustainable housing is to meet demand for housing with adequate options for all households. Families have housing needs that differ from those of singles, and children have different housing needs than the elderly, etc. (Braubach & Power, 2011). Sustainable housing offers diversity that matches the specific needs of relevant population groups (Wheeler, 2009). This goal pertains to unit sizes, occupancies, and home types, whereas subsequent goals address quality, affordability, etc.

Lifestyles and incomes change over time, affecting housing demand. A functioning housing market allows people to change housing as their needs change (Kendig, 1984; DiPasquale & Wheaton, 1996). On the one hand, a low vacancy rate makes it difficult to move, leading to rising prices, overcrowding, and unmet housing needs. On the other hand, high vacancy rates can lead to crime, deterioration, and sluggish production of new or renovated units. Thus, the acceptable level of "structural" vacancy is between 1.5% and 4% for owner occupied units, and between 6% and 10% for rental units (DiPasquale & Wheaton, 1996).

Adequate housing options for people with disabilities and the elderly should be near public transportation, because elderly and disabled people may be unable to drive. Similarly, housing for these populations should meet Americans with Disabilities Act and other visitability standards to ensure safe and comfortable lives. To ensure people with disabilities and the elders have equal access to diverse housing, 100% of housing should be visitable (Reinvent Phoenix Benchmark).

Table 1. Indicators and targets of housing adequacy

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Vacancy rate	Percentage of unoccupied owner units Percentage of unoccupied renter units	>1.5 and <4%[A] >6 and <10%[A]	High High	High	All Districts equally
Options for elderly	Percentage of elderly residents (>65 years)	+/- Equal distribution; currently: 8.4% (PHX)[B]	High	High	All Districts equally

Notes and References:

A. DiPasquale & Wheaton (1996)
B. Reinvent Phoenix Grant Benchmark (Johnson et al., 2011)
C. Americans with Disabilities Act

3.2. Goal 2 – Provide sufficient housing quality and health

Table 2. Indicators and targets of housing quality and health

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Basic amenities	Percentage of units with no electricity or other energy supply	<0.1%[A]	High	Med	All Districts equally
Fitness	Average fitness[B] (1—5) Percentage of units with <2.01 fitness	4.5[C] <0.1%[A]	High High	High	All Districts equally
Landscape quality	Average outdoor summer water use	>50 GD/HH[D]	Medium	Med	All Districts equally
Indoor air quality	Percentage of units exceeding one or more indoor air quality thresholds[E]	<0.1%[A]	High	Med	All Districts equally
Water quality	Percentage of units exceeding one or more water quality thresholds[F]	<0.1%[A]	High	Low	All Districts equally
Noise	Percentage of units exceeding thresholds for noise	<0.1%[A]	High	Low	All Districts equally

Notes and References:

A. <0.1% is used where "zero" would be the ideal target.
B. In the fitness survey, a sample of houses is rated for roof, siding and landscape conditions on a scale from 1—5 (best). Each house receives an average score from three ratings.
C. An average score of 4.5 would insure that few houses are in blight conditions.
D. 50 GD (gals/day) per household (HH) was estimated to be reasonable summer water consumption to maintain a ¼-acre lot with trees and minimal landscaping during the summer months.
E. Carbon monoxide, radon, volatile organic compounds, etc.
F. Lead, asbestos, etc.

The second goal of sustainable housing is to ensure that all housing has sufficient fitness to insure health and safety. Health is not only the absence of disease, and thus compliance with official environmental and health standards does not necessarily provide a healthy home environment. Natural light, vegetation, layout, and access to social and recreational spaces can affect indoor environments and the health of their residents (Lawrence & Hartig, 1998; Lawrence, 2004; Libman et al., 2012). Comprehensive housing fitness incorporates physical conditions with capacity to provide a healthy and safe environment to residents (Krieger, et al. 2000; Jacobs et al., 2009). Older structures (pre-1979) may be more susceptible to fitness and health problems, due to greater retrofitting and maintenance requirements (Wilson et al., 2010).

In addition to basic amenities (drinking water, sewage system, electricity, light, heat, air conditioning, etc.) and the absence of significant damage (e.g., foundational and roof integrity, mold, flood damages), sustainable housing requires compliance with all quality standards for noise, water (no lead, asbestos, etc.), and indoor air (no carbon monoxide, radon, volatile organic compounds etc. seeping from underground toxic groundwater plumes), at a minimum. Several decades of epidemiological studies show that all of these conditions cause health issues (Jacobs et al., 2009).

3.3. Goal 3 – Secure affordability of housing

The third goal of sustainable housing is to provide housing options that are affordable for all residents. Overcrowding is a function of housing affordability, indicating that many families cannot afford units appropriate to family size, leading to negative social and economic impacts (Bratt, 2002). Overcrowding drives poor child development, and increases fire safety risks, and respiratory infection and mortality rates (Evans et al., 2004). For this assessment, the sustainable threshold is below 2% for overcrowding and below 0.1% for severe overcrowding.

District affordability is measured by the share of units being offered at rates affordable for different income groups. We include indicators for 80% of area median family income, the area median family income of the District and the poverty rate.

A standard measure of housing affordability is the percentage of household income dedicated to housing, transportation, and energy costs (Bogdon & Can, 1997). Spending up to 30% of household income on housing costs (rent, mortgage, taxes, etc.), 15% on transportation costs, and 6% on energy, is considered affordable (Center for Neighborhood Technology, 2011; Fisher & Colton, 2013). U.S. Department of Housing and Urban Development grant requirements specify the long-term goal of reducing combined housing and transportation spending by 5% from current District levels, an issue we address in the sustainable housing strategy study (Wiek et al., 2013).

Housing affordability also reflects the availability of housing subsidies. Sustainable housing must include sufficient public housing and assistance programs to support disadvantaged residents with an equitable supply of safe and affordable options. If these programs are meeting their mandates, then few households below the poverty line will have high cost burden.

Table 3. Indicators and targets of housing affordability

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.		Applies to
Overcrowding	More than 1.0 occupants/room More than 1.5 occupants/room (severe)	<2%[A] <0.1%[B]	High High	High	All Districts equally
Regional affordability	Percentage of units affordable to HH earning 80% of HUD AMFI[C] ($1330/mo)	Owned: 100%[D] Rented: 100%[D]	High High	High	All Districts equally
District affordability	Percentage of units affordable to HH earning 49.9%[E] of HUD AMFI[C] ($830/mo)	Owned: 80%[D] Rented: 80%[D]	Medium Medium	High	All Districts equally
Poverty affordability	Percentage of units affordable to HH earning below the poverty line[F] ($580/mo) Units affordable to HH earning below 50% of the poverty line[F] ($290/mo)	44%[F] 29%[F]	High High High High	High	District specific - according to poverty rate in District
Housing costs	Percentage of HH monthly income spent on housing	<30%[G]	Low	Low	All Districts equally
Transportation costs	Percentage of HH monthly income spent on transportation	<15%[G]	Low	Med	All Districts equally
Energy costs	Percentage of HH monthly income spent on energy in the summer	<6%[H]	Low	Med	All Districts equally
Low-income housing cost burden	Percentage of very low-income HH (Income = 20,000/yr = 85% of Poverty Rate) with housing cost burden and without appropriate subsidies	<0.1%[B]	High	Med	All Districts equally

Notes and References:

A. Based on United States average overcrowding of 2.2% (2010 Census).
B. <0.1% is used where “zero” would be the ideal target.
C. Housing and Urban Development Department (HUD) Area Median Family Income (AMFI)
D. Reinvent Phoenix Grant Benchmarks (Johnson et al., 2011)
E. District specific poverty rates
F. Poverty line income for household of four equals $23,550 per year.
G. Center for Neighborhood Technology (2011)
H. Fisher & Colton (2013)

3.4. Goal 4 – Conserve natural resources in homes

Table 4. Indicators and targets for conserving natural resources in homes

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Renewable energy	Percentage of homes using 100% renewable energy on-site	100%[A]	High	Low	All Districts equally
Water consumption	Total residential water use (indoor & outdoor)/person	<90 GPCD[B]	Low	Med	All Districts equally
Reused materials	Percentage of recycled or reused materials in new construction	>75%[A]	Medium	Low	All Districts equally
Local materials	Percentage of locally produced materials[C]	>25%[A]	Medium	Low	All Districts equally
LEED certification	Percentage of LEED certified buildings	>25%[A]	Medium	Low	All Districts equally
Energy-efficiency	Percentage of homes with a major energy-efficient appliance	>50%[A]	Medium	Med	All Districts equally
Energy consumption	Grid electricity use/person	NA	ND	Med	All Districts equally

Notes and References:

A. Authors' best estimates
B. 90by20.org (2013); gallons per capita per day
C. Within a 50 mile radius

The fourth goal of sustainable housing is to conserve natural resources (energy, water, and materials) in homes. This pertains to constructing new homes, retrofitting existing ones, or upgrading particular devices (e.g., energy and water efficient appliances). Building new homes should reuse materials, integrate the most efficient appliances, windows, etc., and rely on the most current "green" building practices. Leadership in energy and environmental design or similar certification (such as Energy Star) should be sought for new construction to insure that the most effective and efficient practices are used (Montoya, 2011).

Existing housing stock is responsible for about 17% of total U.S. greenhouse gas emissions from on-site fuel combustion (gas stoves, etc.) and electricity consumption (EPA, 2013a). Retrofits should bring existing buildings as close to the performance of new "green" construction as possible (Vergragt & Szejnwald Brown, 2012). Adding energy and water efficient appliances to current buildings should be part of periodic updates or retrofitting. Encouraging renewable energy in housing leads to lower energy bills, making housing more affordable for families. Water conservation is critical in the overextended, but growing, Colorado River Basin, especially in desert regions such as Phoenix, where the water supply is more variable (Gammage et al., 2011; Ruddell & Pasqualetti, 2011; 90by20.org, 2013).

On a large scale, renewable energy reduces our dependence on oil, thereby avoiding environmental disasters like the *Deepwater Horizon* accident and curtailing global warming and local emissions from energy production (The White House, 2011). Energize Phoenix is currently in the process of enhancing energy efficiency and reducing energy consumption of homes along Phoenix's light rail (Dalrymple & Bryck, 2012). Investing in renewable energy production in housing also helps to curb water consumption. Solar energy, for instance, requires almost no water to produce, whereas coal, oil, gas, and even nuclear energy require high quantities of water (Gammage et al., 2011). Nonetheless, it is difficult to

even nuclear energy require high quantities of water (Gammage et al., 2011). Nonetheless, it is difficult to define a firm electricity consumption threshold, because it would depend on other household activities, as well as the energy production "mix" of local utilities. Note that broader issues of temperature and energy consumption are addressed in the Green Systems Assessment Reports of this grant.

3.5. Goal 5 – Maintain valuable cultural and historical character

Table 5. Indicators and targets for the maintenance of valuable cultural and historical character

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Neighborhood stability	Percentage of families in the District for 10+ years	>20%[A]	Low	High	All Districts equally
Historical character	Percentage of historically designated homes Percentage of District area with historical designation	>2%[A] >20%[A]	Medium Medium	Med	All Districts equally

Notes and References:

A. Authors' best estimates

The fifth goal of sustainable housing is maintenance of cultural and historic features of homes. This character can be embodied in older buildings and neighborhood stability. Longer tenured residents are more likely to identify and preserve the character of their neighborhood. This does *not* imply a rigid conservationist agenda, rather a thoughtful, culturally sensitive, and historically aware process of modernization of homes and home features (Page & Mason, 2004; Tyler et al., 2009). There is no firm threshold for historical designations, as older neighborhoods will have higher numbers of eligible properties.

3.6. Summary

The following overarching questions, based on the sustainability goals above, guide the subsequent assessment of housing sustainability in the Gateway District (Chapter 4):

1. Is there a current supply of the housing types needed by different population groups and households types; or is there too much or too little housing vacancy?
2. Does all housing provide basic amenities and healthy indoor and outdoor environments; or, is there damage to foundations or roofs that could lead to mold or other structural issues?
3. Is housing affordable for all residents (i.e., is there overcrowding? do housing, transportation, and energy costs place too heavy a burden on households)?
4. Does new construction use the latest energy and resource efficient techniques and indoor amenities?
5. Do residents stay in the neighborhood for a long time? Are homes that represent neighborhood character recognized and preserved?

This chapter concludes with an overview table that summarizes all relevant information presented in detail above. Table 6 could be used as a checklist for housing assessments.

Table 6. Summary table of indicators and targets

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Goal 1 – Current state of meeting demand with adequate housing options					
Vacancy rate	Percentage of unoccupied owner units Percentage of unoccupied renter units	>1.5 and <4% >6 and <10%	High High	High	All Districts equally
Options for elderly	Percentage of elderly residents (>65 years)	Equal distrib. 8.4% PHX	High	High	All Districts equally
Visitability	Percentage of units meeting ADA visitability standards	100%	High	High	All District equally
Goal 2 – Current state of providing sufficient quality of housing and promoting healthy housing conditions					
Basic amenities	Percentage of units with no electricity or other energy supply	<0.1%	High	Med	All Districts equally
Fitness	Average fitness (1—5) Percentage of units with <2.01 fitness	4.5 <0.1%	High High	High	All Districts equally
Landscape quality	Average outdoor summer water use	>50 GD/HH	Medium	Med	All Districts equally
Indoor air quality	Percentage of units exceeding one or more indoor air quality thresholds	<0.1%	High	Med	All Districts equally
Water quality	Percentage of units exceeding one or more water quality thresholds	<0.1%	High	Low	All Districts equally
Noise	Percentage of units exceeding thresholds for noise	<0.1%	High	Low	All Districts equally
Goal 3 – Current state of securing affordability of housing					
Overcrowding	More than 1.0 occupants/room More than 1.5 occupants/room (severe)	<5% <0.1%	High High	High	All Districts equally
Regional affordability	Percentage of units affordable to HH earning 80% of HUD AMFI ($1330/mo)	Owned: 100% Rented: 100%	High High	High	All Districts equally
District affordability	Percentage of units affordable to HH earning 49.9% of HUD AMFI ($830/mo)	Owned: 80% Rented: 80%	Medium Medium	High	All Districts equally
Poverty affordability	Percentage of units affordable to HH earning below the poverty line[J] ($580/mo) Units affordable to HH earning below 50% of the poverty line ($290/mo)	44% 29%	High High High High	High	District specific - according to poverty rate in District
Housing costs	Percentage of HH monthly income spent on housing	<30%	Low	Low	All Districts equally
Transportation costs	Percentage of HH monthly income spent on transportation	<15%	Low	Med	All Districts equally
Energy costs	Percentage of HH monthly income spent on energy in the summer	<6%	Low	Med	All Districts equally
Low-income housing cost burden	Percentage of low-income HH (Income = 20,000/yr = 85% of Poverty Rate) with housing cost burden and without appropriate subsidies	<0.1%	High	Med	All Districts equally

Indicator	Definition	Sustainability Target (Range)	Confidence Level T.	Importance	Applies to
Goal 4 – Current state of conserving natural resources					
Renewable energy	Percentage of homes using 100% renewable energy on-site	100%	High	Low	All Districts equally
Water consumption	Total residential water use (indoor & outdoor)/person	<90 GPCD	Low	Med	All Districts equally
Reused materials	Percentage of recycled or reused materials in new construction	>75%	Medium	Low	All Districts equally
Local materials	Percentage of locally produced materials	>25%	Medium	Low	All Districts equally
LEED certification	Percentage of LEED certified buildings	>25%	Medium	Low	All Districts equally
Energy-efficiency	Percentage of homes with a major energy-efficient appliance	>50%	Medium	Med	All Districts equally
Energy consumption	Grid electricity use/person	NA	ND	Med	All Districts equally
Goal 5 – Current state of maintaining valuable cultural and historical character					
Neighborhood stability	Percentage of families in the District for 10+ years	>20%	Low	High	All Districts equally
Historical character	Percentage of historically designated homes Percentage of District area with historical designation	>2% >20%	Medium Medium	Med	All Districts equally

Chapter 4 – Sustainability of the Current State of Housing

In this chapter, we present the sustainability assessment of the current state of housing in the Gateway District, based on the goals, indicators, and targets presented in Chapter 3. Data was gathered from the most recent sources available, as discussed in Chapter 2. The assessment uses a color rating system. Red indicates that existing conditions fall short of the sustainable target. Green indicates that existing conditions either meet or exceed the sustainability target. Gray indicates that an explicit threshold is not available (NA), or there is no data for that indicator (ND).

4.1. Goal 1 – Current state of meeting demand with adequate housing options

Table 7. Indicators, targets, data, and assessment of housing adequacy

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Vacancy rate	>1.5 and <4%[A] >6 and <10%[A]	High High	5.9% 17.7%	High High	1.9% / Low 7.7% / High		High	All Districts equally
Options for elderly	+/- Equal distribution; currently: 8.4% (PHX)[B]	High	6.5%	High	1.9% / Low		High	All Districts equally
Visitability	100%[B]	High	15%	Low	85%		High	All District equally

Notes and References:

A. DiPasquale & Wheaton (1996)

B. Reinvent Phoenix Grant Benchmark

Current State Data

There are 5,282 homes in Gateway. Single-family detached homes are predominant (30%), with 23% of units in single-family attached homes, duplexes, triplexes, and quadplexes (Appendix). About 24% of units have three or more bedrooms, suitable for large families, and around 30% are studios or one-bedrooms, appropriate for singles, the elderly, and couples without children. Vacancy rates are high, at 6% for owned houses and 18% for rentals. Visitability data are unattainable; yet, it is likely that few of the housing units in the District are truly visitable, even though 28% of units were built after 2000.

Assessment

Gateway housing types are significantly mismatched with District housing needs; units available for rent especially, are not appropriate for the households seeking to live in the District. This may reflect poor unit quality, or high prices for recently constructed units. Vacancy rates for owned and rented units are above the sustainable threshold, which may result in blight, crime, and divestment. We suspect Americans with Disabilities Act visitability compliance to be very low, in accordance with general building practices. Elderly residents are finding housing options in the District reasonably close to their share in the city.

4.2. Goal 2 – Current state of providing sufficient housing quality and health

Table 8. Indicators, targets, data, and assessment of healthy housing conditions

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Basic amenities	<0.1%[A]	High	1.4%	High	1.4 / High		Med	All Districts equally
Fitness	4.5[B] <0.1%[A]	High High	3.0 23%	Medium Medium	1.5 23%		High	All Districts equally
Landscape quality	>50 GD/HH[C]	Medium	66 GD/HH	High	Fulfilled (+16 GD/HH)		Med	All Districts equally
Indoor air quality[E]	<0.1%[A]	High	[Indoor vapor data in OU2][D]	Medium	Exceed RBSLs[E]		Med	All Districts equally
Water quality[F]	<0.1%[A]	High	Minimal	Medium	Fulfilled		Low	All Districts equally
Noise	<0.1%[A]	High	ND	ND	ND		Low	All Districts equally

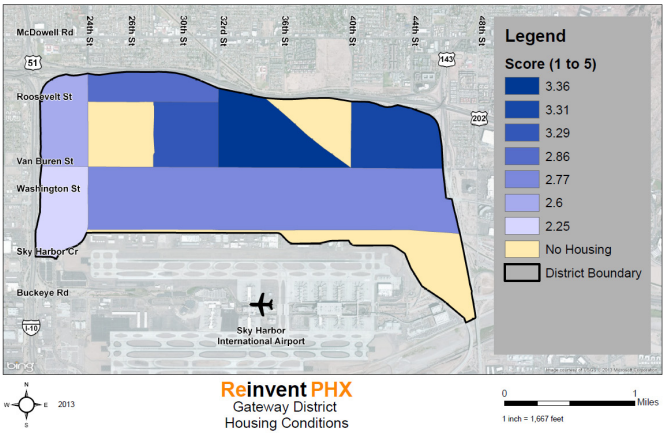
Notes and References:

A. <0.1% is used where "zero" would be the ideal target.
B. An average score of 4.5 would insure that few houses are in blight conditions.
C. 50 gals/day/household (HH) was estimated to be reasonable summer water consumption to maintain a ¼-acre lot with trees and minimal landscaping during the summer months.
D. OU2 is Operable Unit 2 of the EPA-designated Motorola, Inc. 52nd Street superfund site (M52 superfund site): EPA, 2013b. Find more details in the main text and referenced sources.
E. Risk-Based Screening Levels

Current State Data

There is a mixture of positives and negatives in the District in terms of housing quality and health. For the most important indicators, however, our overall assessment is negative. Older housing stock (49% of units constructed before 1979), low incomes, and absentee landlordism drive low housing fitness and health problems. For example, Gateway's three zip codes were among the 20 with the most lead poisoning cases in the city (City of Phoenix, 2009). Housing in Gateway has low average fitness (3.0), and an alarming share (23% = 1,215 units) with very low fitness (1—2). Figure 4 shows the large disparity of fitness ratings throughout the District. Census data shows that 1.4% of units have no electricity or gas supply, meaning there is no air conditioning, heat, or working kitchen. There are also concerns related to indoor air quality as some homes tested under recent M52 Superfund health impact analyses found carcinogenic vapor intrusions above the current risk-based screening levels (ADEQ, 2013; EPA, 2013c). These houses are located in Operable Unit 2 of the M52 superfund site. The OU2/OU3 border runs north-south on 18th Street, just west of the airport and the I10. The OU1/OU2 border running north-south is at 46th street, north of the 143/202 exchange and just east of the Phoenix Airport Marriott. RBSLs are currently being reviewed at the federal level and might be significantly lower in the near future (EPA, 2013b).

Figure 4. Housing fitness ratings



On the positive side, average summer outdoor water use seems adequate to support healthy landscapes, though there are significant variations between neighborhoods and households.

Assessment

Overall, there are strong indications of housing conditions that are detrimental to the health of residents. Almost a quarter of all units have very low fitness levels, including mold and pests. High housing age, low incomes, and other factors drive these fitness issues. The homes in Operable Unit 2 of the M52 Superfund site are another major concern for health issues.

4.3. Goal 3 – Current state of securing affordability of housing

Table 9. Indicators, targets, data, and assessment of housing affordability

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Overcrowding	<2%[A] <0.1%[B]	High High	9.1% 3.1%	High High	7.1% / High 3.0% / High		High	All Districts equally
Regional affordability	Owned: 100%[C] Rented: 100%[C]	High High	74% (51%[D]) 92% (82%[D])	High High	26% (49%) / High 8% (18%) / High		High	All Districts equally
District affordability	Owned: 80%[C] Rented: 80%[C]	Medium Medium	47% 58%	High High	33% / High 22% / High		High	All Districts equally
Poverty affordability	44%[E] 29%[E]	High High High High	Owned: 38% Rented: 27% Owned: 6% Rented: 7%	High High High High	6% / Low 7% / Low 23% / High 22% / High		High	District specific - according to poverty rate in District
Housing costs	<30%[F]	Low	29.1%	High	Fufilled (-0.9%)		Low	All Districts equally
Transportation costs	<15%[F]	Low	23.5%	High	8.5% / High		Med	All Districts equally
Energy costs	<6%[G]	Low	8—12%	Low	2-6% / Medium		Med	All Districts equally
Low-income housing cost burden	<0.1%[B]	High	87%	High	87% / High		Med	All Districts equally

Notes and References:

A. Based on United States average overcrowding of 2.2% (2010 Census).
B. <0.1% is used where "zero" would be the ideal target.
C. Reinvent Phoenix Grant Benchmarks
D. Housing and Urban Development Department (HUD) Area Median Family Income (AMFI)
E. District specific poverty rates
F. Center for Neighborhood Technology (2011)
G. Fisher & Colton (2013)

Current State Data

In Gateway, 74% of owner-occupied units and 92% of rental units are affordable for a family earning 80% of AMFI. However, median household income in Gateway is $29,852, or roughly 50% of the area median income. For households at that income level, only about 47% of the owner-occupied units and 58% of rental units are affordable. Of Gateway residents, 44% fall below the federal poverty line, and 29% below 50% of the poverty line. Thus, a smaller share of units is affordable for those households. Indeed, 87% of very low-income households (85% of poverty income or less) are housing cost burdened. This lack of affordability may partly explain the extreme level of overcrowding in the District.

Table 10. Selected housing cost data

Indicator	Current
Percentage of HHs spending >30% of income on housing	51%
Percentage of residents below 50% of the poverty line Percentage of residents below 100% of the poverty line Percentage of residents below 200% of the poverty line	29% 44% 71%
Median HH income Median HH income (renter) Median HH income (owner)	$29,852/ yr $27,160/yr $40,661/yr
Median housing costs Median housing costs (renter) Median housing costs (owner)	$769/mo $735/mo $986/mo
Median selected monthly costs for homes owned with a mortgage Median selected monthly costs for homes owned without a mortgage	$1,187/mo $432/mo
Median value of an owner occupied unit	$118,270
Percentage of residents who are elderly (over 65 years old)	6.5%
Percentage of elderly HH spending >30% of income on housing (renter) Percentage of elderly HH spending >30% of income on housing (owner)	7.2% 9.5%

Housing costs vary considerably between homeowners and renters. Among homeowners, costs vary between those with and without mortgages. While the average renter pays about $735 per month, the average owner with a mortgage pays close to 1.5 times that amount. Households owning their homes free and clear pay a fraction of these costs. Strikingly, the majority of households in all categories (51%) spend more than 30% of their income on housing costs. (Please the Appendix for a detailed map of spatial distribution of costs.)

Gateway residents overwhelmingly rely on private automobiles for transportation: 77% drive alone to work, 12% carpool, and 83% of households own at least one vehicle (more detail in the Appendix). Thus, residents incur large transportation costs, spending an average of 23% of their income on transportation. Energy costs further reduce affordability with District costs averaging 8—12% of income.

Assessment

There are profound housing cost pressures for Gateway's current households, which earn only about 50% of area median income. Energy costs and transportation costs are also unaffordable, likely due to the prevalence of driving commutes and lack of renewable energy and energy-efficient technologies in homes (Appendix). For many households, housing size and high costs result in rates of overcrowding and severe overcrowding that clearly surpass sustainable thresholds.

4.4. Goal 4 – Current state of conserving natural resources

Current State Data

Sufficient data to make a full assessment of the environmental performance of the housing in the Gateway District is lacking. The origins of building materials used for new construction are unattainable, as is data on the environmental performance of the appliances in existing and new homes. We recommend that this data be collected in the future. For those data that do exist, the picture is mixed. Water use is very much within sustainable levels, but renewable energy and leadership in energy and environmental design construction are still minimally used in the District.

Assessment

In general, there is not enough information to assess the current state of housing in Gateway in terms of its environmental performance. Water consumption is

Table 11. Indicators, targets, data, and assessment of environmental performance

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Renewable energy	100%[A]	High	<1%	Medium	99% / High		Low	All Districts equally
Water consumption	<90 GPCD[B]	Low	58 GPCD	High	Fulfilled (-32 GPCD)		Med	All Districts equally
Reused materials	>75%[A]	Medium	ND	ND	ND		Low	All Districts equally
Local[C] materials	>25%[A]	Medium	ND	ND	ND		Low	All Districts equally
LEED certification	>25%[A]	Medium	Minimal	Medium	High		Low	All Districts equally
Energy-efficiency	>50%[A]	Medium	ND	ND	ND		Med	All Districts equally
Energy consumption	NA	ND	ND	ND	ND		Med	All Districts equally

Notes and References:

A. Authors' best estimates
B. 90by20.org (2013)
C. Within a 50 mile radius

sustainable, while renewable energy use and leadership in energy and environmental design construction do not meet the sustainable levels.

4.5. Goal 5 – Current state of maintaining valuable cultural and historical character

Table 12. Indicators, targets, data, and assessment of cultural preservation

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Neighborhood stability	>20%[A]	Low	21%	High	Fulfilled (+1%)		High	All Districts equally
Historical character	>2%[A] >20%[A]	Medium Medium	0.6% 5%	High High	1.4% / Med 15% / High		Med	All Districts equally

Notes and References:

A. Authors' best estimates

Current State Data

Around 21% of households have lived in the District for ten years or more. This points to community stability and resiliency. However, historical protection of properties in the District is low, and may reflect the District's industrial and commercial character.

Assessment

Neighborhood stability is fairly high (above the target), while historical preservation falls short of our sustainable targets.

4.6. Summary and Priorities

We conclude this chapter first with an overview table that summarizes all relevant assessment information presented in detail above. Table 13 could be considered the checklist for Gateway's housing assessment.

Table 13. Summary table of indicators, targets, current state data, distance-to-targets, and assessments

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Goal 1 – Current state of meeting demand with adequate housing options								
Vacancy rate	>1.5 and <4% >6 and <10%	High High	5.9% 17.7%	High High	1.9% / Low 7.7% / High		High	All Districts equally
Options for elderly	+/- Equal distribution; currently: 8.4% (PHX)	High	6.5%	High	1.9% / Low		High	All Districts equally
Visitability	100%	High	15%	Low	85%		High	All Districts equally
Goal 2 – Current state of providing sufficient quality of housing and promoting healthy housing conditions								
Basic amenities	<0.1%	High	1.4%	High	1.4 / High		Med	All Districts equally
Fitness	4.5 <0.1%	High High	3.0 23%	Medium Medium	1.5 23%		High	All Districts equally
Landscape quality	>50 GD/HH	Medium	66 GD/HH	High	Fulfilled (+16 GD/HH)		Med	All Districts equally
Indoor air quality	<0.1%	High	[Indoor vapor data in OU2]	Medium	Exceed RBSLs		Med	All Districts equally
Water quality	<0.1%	High	Minimal	Medium	Fulfilled		Low	All Districts equally
Noise	<0.1%	High	ND	ND	ND		Low	All Districts equally

Indicator	Sustainability Target (Range)	Confidence Level T.	Current Data	Confidence Level C.D.	Distance-to-target	Assessment	Importance	Applies to
Goal 3 – Current state of securing affordability of housing								
Overcrowding	<5% <0.1%	High High	9.1% 3.1%	High High	4.1% / High 3.1% / High		High	All Districts equally
Regional affordability	Owned: 100% Rented: 100%	High High	74% (51%) 92% (82%)	High High	26% (49%) / High 8% (18%) / High		High	All Districts equally
District affordability	Owned: 80% Rented: 80%	Medium Medium	47% 58%	High High	33% / High 22% / High		High	All Districts equally
Poverty affordability	44% 29%	High High High High	Owned: 38% Rented: 27% Owned: 6% Rented: 7%	High High High High	6% / Low 7% / Low 23% / High 22% / High		High	District specific - according to poverty rate in District
Housing costs	<30%	Low	29.1%	High	Fufilled (-0.9%)		Low	All Districts equally
	<15%	Low	23.5%	High	8.5% / High		Med	All Districts equally
Energy costs	<6%	Low	8—12%	Low	2—6% / Medium		Med	All Districts equally
Low-income housing cost burden	<0.1%	High	87%	High	87% / High		Med	All Districts equally
Goal 4 – Current state of conserving natural resources								
Renewable energy	100%	High	<1%	Medium	99% / High		Low	All Districts equally
Water consumption	<90 GPCD	Low	58 GPCD	High	Fulfilled (-32 GPCD)		Med	All Districts equally
Reused materials	>75%	Medium	ND	ND	ND		Low	All Districts equally
Local materials	>25%	Medium	ND	ND	ND		Low	All Districts equally
LEED certification	>25%	Medium	Minimal	Medium	High		Low	All Districts equally
Energy-efficiency	>50%	Medium	ND	ND	ND		Med	All Districts equally
Energy consumption	ND	ND	ND	ND	ND		Med	All Districts equally
Goal 5 – Current state of maintaining valuable cultural and historical character								
Neighborhood stability	>20%	Low	21%	High	Fulfilled (+1%)		High	All Districts equally
Historical character	>2% >20%	Medium Medium	0.6% 5%	High High	1.4% / Med 15% / High		Med	All Districts equally

The current state of housing in the Gateway District is unsustainable across the goals of sustainable housing, particularly in providing adequate and affordable housing options for all residents that are of sufficient quality and conserve natural resources. Low incomes, in conjunction with high transportation and energy costs, as well as inadequate housing subsidies result in overcrowding with adverse social and health impacts. In addition, vacancy rates for owner occupied units are above acceptable levels, and are very high for rental units. These factors drive property degradation and low historic preservation. "Green" construction is not observable, and its absence makes for high energy and water use.

In reviewing the results from the data-driven assessment, stakeholder inputs, and U.S. Department of Housing and Urban Development's livability principles, there are two priorities for the Gateway District to address in the process of achieving adequate, healthy, and affordable housing for all residents:

1. Improve quality of housing and lower vacancy rates: Gateway must ensure that all housing options have a sufficient level of fitness to insure health and safety (Krieger et al., 2000; Jacobs et al., 2009). Good housing quality improve the value of units over time, avoid vacancy, strengthen neighborhood identity, and encourage connectivity between residents. One particularly troubling environmental condition for Gateway households is the impact from industrial groundwater pollution and vapor intrusion (ADEQ, 2013; EPA, 2013c). The Environmental Protection Agency has also confirmed that toxic vapor from contaminated groundwater affects indoor air quality in some homes. Better housing quality and healthfulness would make units more attractive to prospective residents and hopefully lower vacancy rates. The challenge of vacancy might not completely be mitigated by improved housing quality; more significant retrofitting or additional housing might be necessary to meet current and future housing demand with adequate housing options. Finally, quality improvements need to be cautious about potential gentrification effects.

2. Increase affordability and mitigate overcrowding driven by low incomes with high transportation and energy costs: In Gateway, 9% of units suffer from overcrowding and 3% from severe overcrowding. This is in part due to very low income levels across the District. Although 74—92% of the housing stock is affordable for a family earning 80% of area median income, the average median income of Gateway residents is only 50% of area median income. There are other high-cost burdens for current Gateway residents, who spend over 20% of their income on transportation and 8—12% on energy, which is likely due to the prevalence of driving commutes and lack of renewable energy and energy-efficient technologies in homes. For many households, housing size and high costs result in rates of overcrowding and severe overcrowding that clearly surpass sustainable thresholds. While increasing affordability can be influenced by housing projects, programs, and policies (including effective subsidies), the highest priority should be given to increasing income levels across the District. The persistently low income levels are directly or indirectly driving overcrowding, low housing quality, and vacancy rates. Yet, this priority area needs to be addressed in concert with other interventions, which primarily fall into the domains of economic development and education.

Though conserving natural resources and historical preservation also pose challenges and are prioritized by U.S. Department of Housing and Urban Development (energy efficiency, leadership in energy and environmental design, etc.), stakeholder input prioritizes health (housing quality) and affordability above these challenges.

4.7. Open Issues

Tradeoffs between assessment goals require additional interpretation of the assessment results. For example, there are conflicts between water use, landscape quality, and energy use for cooling. Lower energy use is essential for natural resource conservation. However, to provide healthy and quality housing in a desert with high summer temperatures, housing units require cooling. Cooling consumes energy (air conditioning) and water (vegetation) in a trade-off with conservation. Additionally, the increase of energy costs for residents (owners and renters) reduces overall affordability of certain units.

Another trade-off exists between providing quality housing with high fitness levels and providing affordable housing. Older housing units require less upkeep, and are more affordable for residents. However, construction of new housing units and retrofitting of older units to meet sustainable fitness levels can compromise affordability

with rising prices for both owners and renters. Similar concerns pertain to the investments necessary to achieve full compliance with Americans with Disabilities Act standards (visitability). This might have gentrification effects in the District.

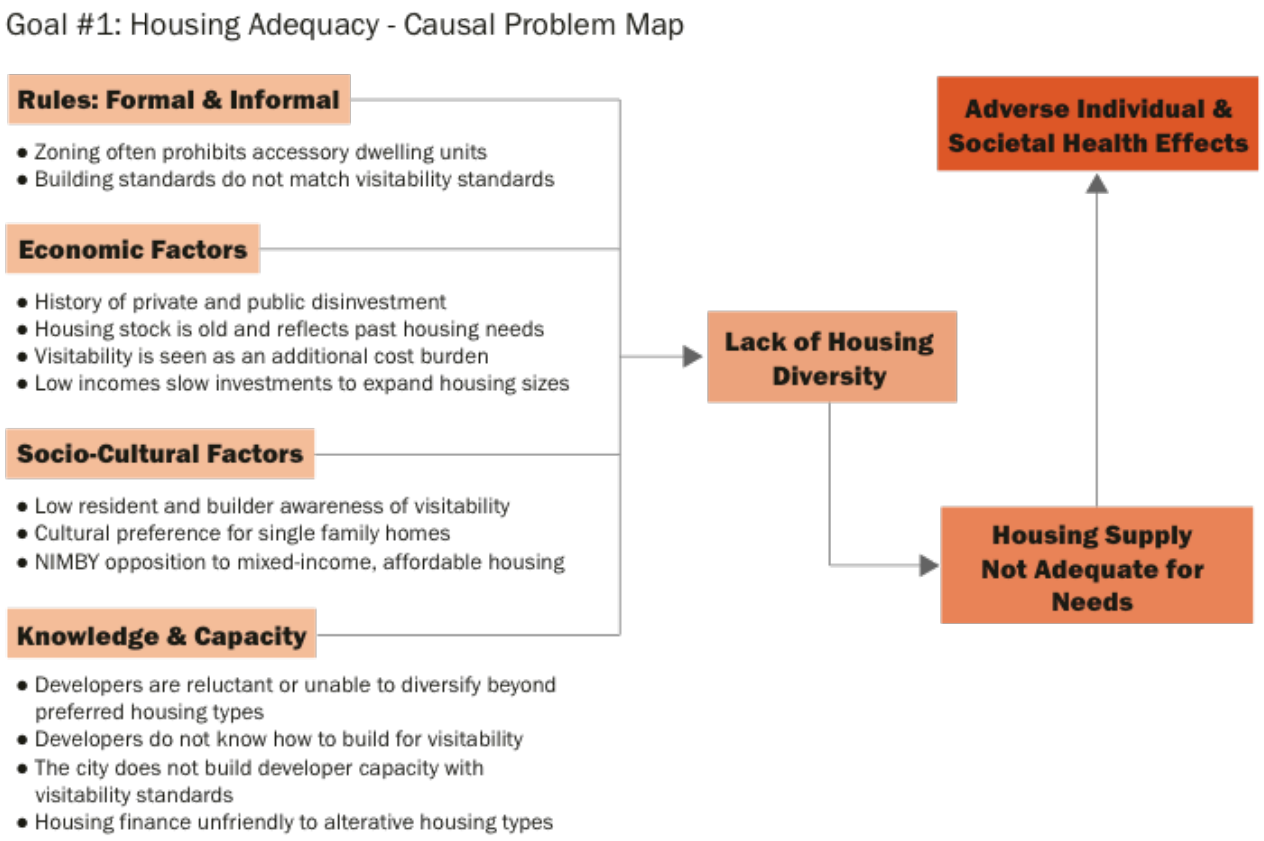
Additional research is also needed to provide truly *evidence-supported* targets for indicators that operationalize the goals of sustainable housing. In concert, sufficient data to assess performance relative to those targets is also lacking in some areas. However, this rigorously arranged assessment, even with a few missing data and thresholds, sets the stage for research that fills gaps and results in comprehensive and robust housing assessments. Public agencies could support these efforts by collecting relevant data, making it accessible, and facilitating a better understanding of sustainability issues in housing. With evidence-supported targets and sufficient data for sustainability assessments, interpretation of distances-to-target would be better linked to priorities expressed by researchers, stakeholders, and funding bodies.

Chapter 5 – Causal Problem Maps for Housing

In this chapter, we present the drivers (causal structures) for the problems identified in the sustainability assessment (Chapter 4). The problem maps are primarily defined through those performance indicators that do not meet their sustainability targets. All causal assumptions are based on expert input and scientific literature. Performance indicators themselves cannot be directly changed, because change requires addressing the upstream drivers of indicators. The causal problem maps identify those drivers, and thus they offer promising intervention points for strategies of change.

5.1. Goal 1 – Problem map of meeting demand with adequate housing options

Figure 5. Housing adequacy causal problem map

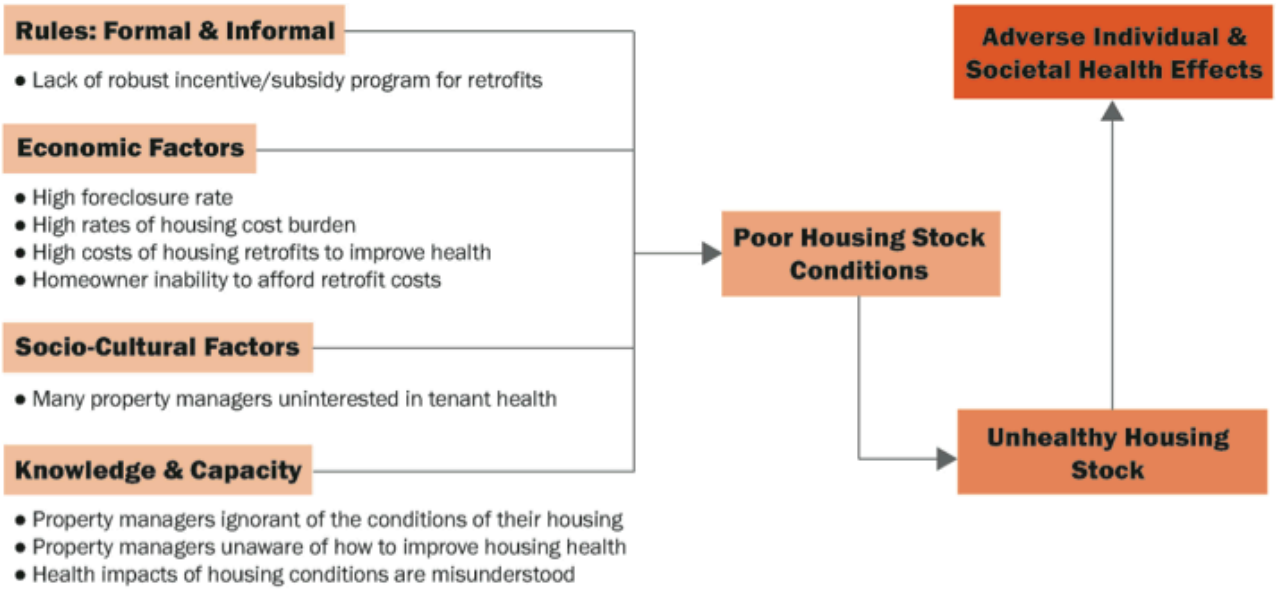


This map illustrates that cultural preferences for single-family homes and "not in my backyard" (NIMBYism) drive opposition to mixed-income, affordable housing. In concert, low public and private investment in adequate, affordable housing makes developers reluctant to diversify beyond status quo non-visitable and largely unaffordable housing. Low funding availability is worsened by low household economic capacity, developer knowledge gaps, and rules that fail to support the diversity of demand. Current zoning and the lack of visitability standards are some of those rules, and lead to housing inadequate and unaffordable for many District residents. Families often

find themselves overcrowded and emotionally burdened, dealing with noise pollution, poor air quality, and low to no visitability. Potential strategic intervention points include developer capacity building, retrofit programs to update housing for current needs, and new zoning for accessory dwelling units and visitability.

5.2. Goal 2 – Problem map of providing sufficient quality of housing and promoting healthy housing conditions

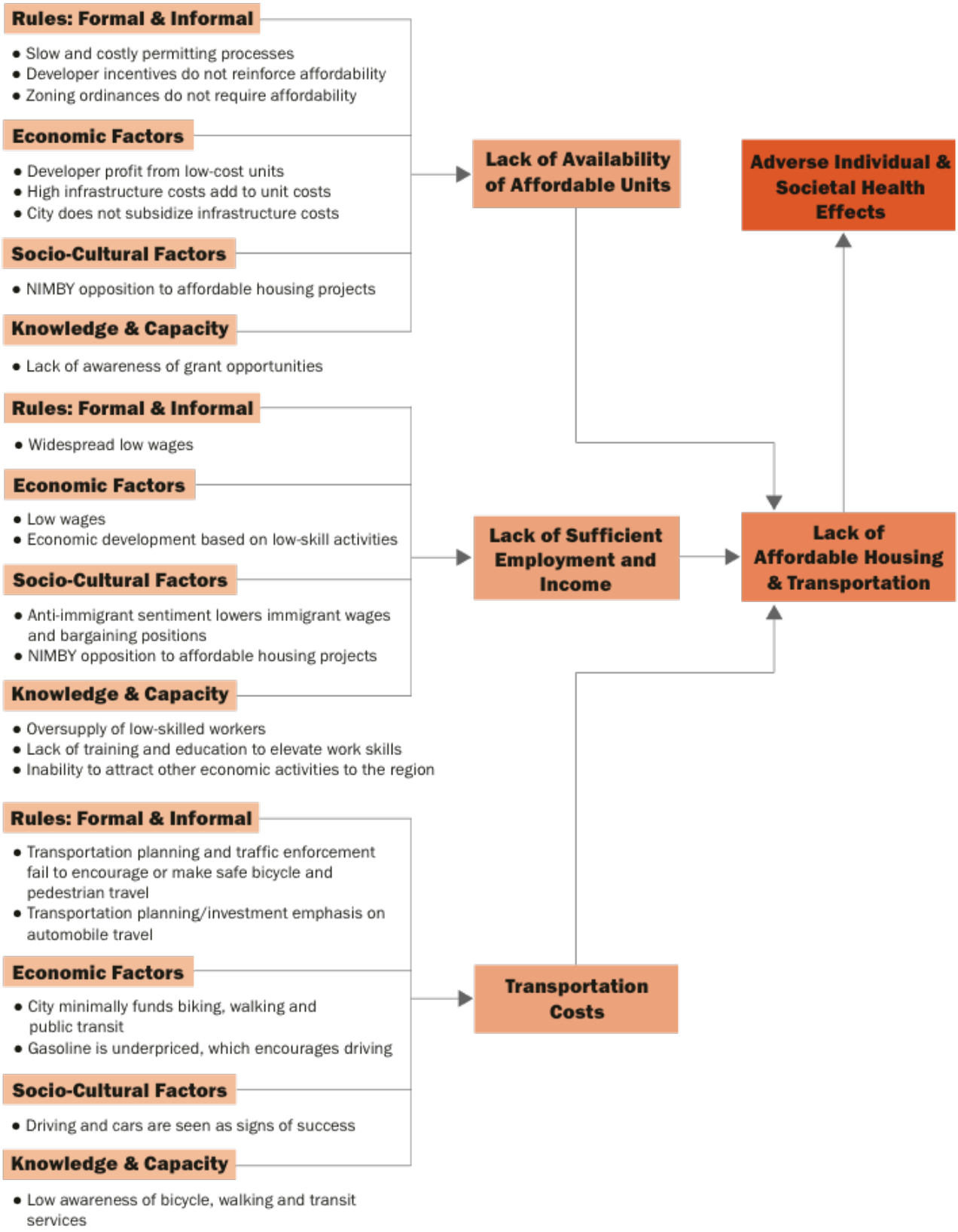
Figure 6. Housing quality and health causal problem map



Absentee landlords, as well as high retrofit and housing cost burdens, prevent home maintenance and lead to low housing fitness with negative health impacts. With low knowledge and willingness, property managers lack incentives or accountability for improving the quality and health of housing in the District. In addition, foreclosures lead to abandoned properties that decline into disrepair, and reduce property values. Strategies to address quality and health of District housing will include better code enforcement, public assistance for retrofitting units to improve health, and outreach to improve knowledge and capacity about housing quality and health.

5.3. Goal 3 – Problem map of securing

Figure 7. Housing affordability causal problem map



Three main problem areas contribute to low housing affordability: availability, incomes, and transportation costs. A variety of complex cultural factors reinforce availability of affordable units, including zoning, permitting, and the culture of development. These issues are further complicated by higher profits from market-rate units, limited subsidies, and high infrastructure costs, which push developers away from low-cost unit development. Similarly, grants for affordable housing development are time consuming and not well publicized.

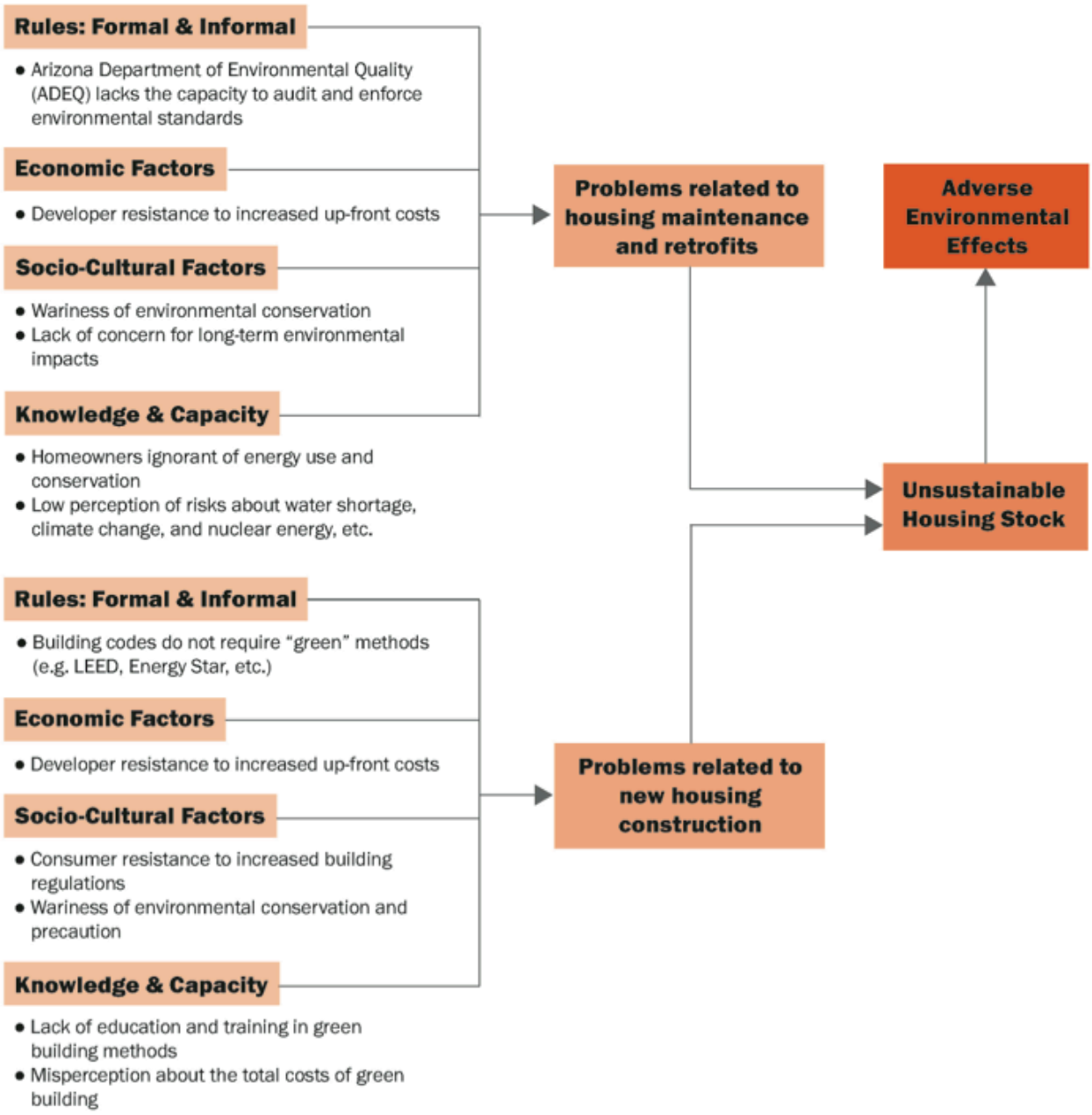
Economic and socio-cultural factors drive insufficient employment and income for residents to afford quality housing. Low wages and low-skill economic development perpetuate poverty, while weak job training and education keeps residents in low wage jobs, and unable to afford quality housing. Anti-immigrant sentiments only worsen these problems, making for lower wages and little chance for these populations to bargain for better income and benefits.

Finally, transportation costs have a major impact on housing affordability. These costs stem from infrastructure that fails to encourage transit use or pedestrian and bicyclist safety. The convenience and cultural normativity of driving, coupled with low awareness of alternate transportation, leads residents to depend on personal automobiles, which are seen as a sign of success.

Promising points of intervention to increase District housing affordability are requirements for affordability in new construction, better planning for housing near public transit, and reducing infrastructure costs for developers. Housing near transit incentivizes pedestrian and bicycle travel, helps lower transportation costs, and improves infrastructure efficiency. In addition, skill training programs and better employment opportunities in the District could drive economic development and help residents afford quality housing.

5.4. Goal 4 – Problem map of conserving natural resources

Figure 8. Conserving natural resources causal problem map



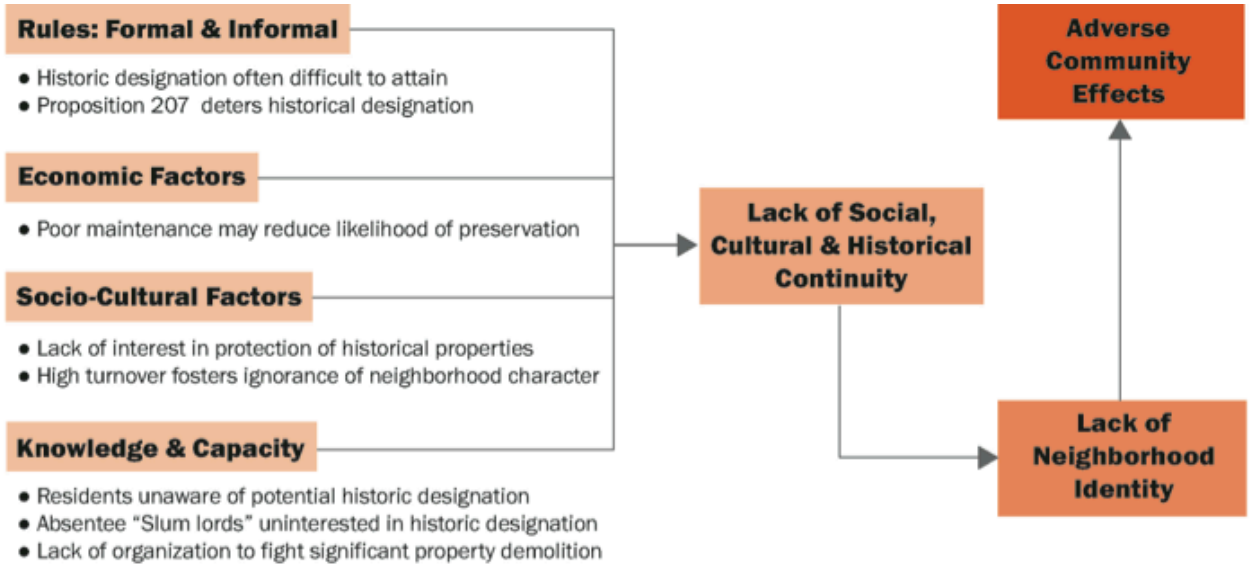
Housing should allow households to live comfortably with efficient energy and resource consumption. Resource inefficiency stems from unenforced environmental standards and the lack of subsidies for "green" retrofit and construction. Household and developer ignorance of energy costs and potential savings from "green" construction and retrofitting also drives inefficiencies and higher costs. Water and energy are underpriced, and residents do not connect their energy and water use to the effects that climate change and energy production have on the environment.

Developers are resistant to voluntary "green" standards (such as leadership in energy and environmental design

or Energy Star) that have high upfront costs compared to conventional (non-"green") building codes. Additionally, residents and property managers often underestimate the long-term net savings of "green" building. Finally, the lack of "green" construction capacity building opportunities, and resistance to environmental precaution and new building regulations, combine to decrease resource conservation. Key points of intervention for resource conservation are stronger rules and codes for new construction, increased "green" building capacity and knowledge, and supplying subsidies and grants for energy efficient retrofits.

5.5. Goal 5 – Problem map of maintaining valuable cultural and historic character

Figure 9. Maintaining valuable cultural and historic character causal problem map



A neighborhood's culture and identity is in its buildings and homes. However, difficult historic designation processes and poor maintenance are barriers to preservation. Also, historical designation requires *all* property owners to sign zoning waivers for their neighborhood. This limits the development potential of properties, which in many cases, reduce property values. Many property owners are thus opposed to historical designation, and would be able to sue the city under Proposition 207 if property values decreased due to such a designation.

Expanding infrastructure that encourages personal vehicles, changes in employment opportunities, and high neighborhood turnover makes preservation of neighborhood culture and identity difficult. Low awareness of designation potential, lack of absentee landlord interest in designation, and weak neighborhood organization to combat demolition all degrade social, cultural and historic continuity. Promising areas of intervention to maintain neighborhood identity include better neighborhood organizations, improved community development tools, and increased awareness of iconic historic structures for preservation.

Chapter 6 – Transition Strategy towards Sustainable Housing

The sustainable housing strategy has been developed based on the detailed expert-based sustainability assessments presented in the previous chapters; a community-informed sustainability vision; and the sketch of a theory of change. All three inputs are briefly summarized in the first section below (6.1.). These inputs were then processed into evidence-informed interventions and investments to transition housing in the Gateway District from its currently unsustainable state to a sustainable state of diverse, healthy, affordable, energy-efficient, and culturally sensitive housing. The strategy adopts a long-term perspective that needs to be coordinated with short-term actions and clear roles and responsibilities of various stakeholder groups to be successful.

6.1. Strategy Inputs

6.1.1. Summary of Current State Assessment of Housing in the Gateway District

Based on the goals of sustainable housing (see 1.3 above), the current state assessment concludes that the District is in need of adequate and affordable housing options of sufficient quality with good environmental performance (energy efficiency) that maintain valuable cultural and historical character. Considering stakeholder input and the specific grant requirements (livability principles), the following four challenge areas emerge as priorities:

1. *Demand is not met with adequate housing options.* Units available for rent especially, are not appropriate for the households seeking to live in the District. This may reflect poor unit quality, or high prices for recently constructed units. Vacancy rates for owned and rented units are above the sustainable threshold, which may result in blight, crime, and divestment. Visitability compliance is expected to be very low, in accordance with general building practices.

2. *Quality of housing is poor and unhealthy housing conditions are observable.* The District has low average housing fitness (roof, siding, landscape issues), and some units lack electricity or other energy supply. Low incomes, housing age, and absentee landlordism combine to drive additional housing fitness concerns, such as mold and pests. Some homes are affected by pollution (vapor intrusion) from the M52 superfund site.

3. *The District struggles with several housing affordability challenges.* Average housing costs are relatively low, but this comes at the price of low-quality housing (see Goal 2). Although 74—92% of the housing stock is affordable for a family earning 80% of area median income, the average median income of Gateway residents is only 50% of area median income. There are other high-cost burdens for current Gateway residents, who spend over 20% of their income on transportation and 8—12% on energy, which is likely due to the prevalence of driving commutes and lack of renewable energy and energy-efficient technologies in homes. For many households, housing size and high costs result in rates of overcrowding and severe overcrowding that clearly surpass sustainable thresholds.

4. *Additional efforts of conserving natural resources in homes seem beneficial.* Renewable energy use and energy efficiency (leadership in energy and environmental design construction) do not meet the sustainable levels, but would have the potential to enhance housing quality, while lowering energy costs.

6.1.2. Summary of Vision for Sustainable Housing in the Gateway District

The relevant passage from the overall vision for the Gateway District reads (Wiek et al., 2012):

> *In 2040, the Gateway District hosts new and renovated housing options, a small grocery store, and other family-owned businesses that employ District residents. Aesthetic Sonoran landscaping with strategic oases complements parks, the Grand Canal, and a mix of other land-uses. Mobility hubs in the District, especially those close to light rail stations, enjoy bustling pedestrian and bike*

traffic. People can live close to where they work, and are able to satisfy most of their daily needs without a car. Overall, Gateway is a balanced, diverse, thriving, connected, green, and healthy District.

The specific vision for sustainable *housing* in the Gateway District is derived from this vision and is aligned with the five sustainable housing goals mentioned in Chapter 3. It reads:

In 2040, residents live in diverse, cohesive neighborhoods. The Gateway District is family-oriented, and people of diverse ages, occupations, and ethnicities feel welcome, comfortable, and connected. Various housing options are suitable and affordable to current and potential future residents, including students, elders, and professionals. Many residents and their families have been living in the District for years, and many have made beautiful improvements to their homes. Much of the existing housing has been preserved. There are also new houses and apartments, including some two- and three-story buildings and townhomes. Some of these include a coffee shop or offer other services. A mix of three-, four-, five- story apartment buildings line Van Buren Street and other major roads. These apartments are a short walk from services and attractions like the local market or the Celebrity Theatre. Taller, mixed-use buildings border the light rail, and their residents generally commute by public transit. At the District's western edge, a few higher-end buildings offer apartments, condos, and lofts closer to downtown. Older housing in the Gateway District has been slowly rehabilitated, and newer buildings cater to both old and new residents, making for a diverse District. Gateway is an enticing place to live or just visit, whether to work, raise a family, or enjoy the community.

This housing vision must be further operationalized with quantified targets for lead indicators that measure progress toward achieving the five sustainable housing goals. Table 14 summarizes a few exemplary targets as well as distances-to-targets as key reference points for strategy building.

Table 14. Table of Select Indicators, Targets, Current State Data, and Distances-to-Target

Indicator	Sustainability Target (Range)	Current State Data	Distance-to-target
Goal 1 – Current state of meeting demand with adequate housing options			
Options for elderly	8.4% PHX = 1091 units	6.5% = 841 units	1.9% / Low = 250 units
Goal 2 – Current state of providing sufficient quality of housing and promoting healthy housing conditions			
Basic amenities	<0.1%	1.4% = 73 units	1.4 / High = 1,215 units
Fitness	<0.1%	23% = 1,215 units	23% / High = 1,215 units
Goal 3 – Current state of securing affordability of housing			

Through the visioning process, six priority areas (transition areas or areas of change) were selected in order to make the vision spatially explicit. Vision data determine building types, heights, and other characteristics appropriate for each locality.

1. 2040, the 24th Street and Van Buren hosts an artist community and student apartments. There is also affordable housing for seniors, and low-cost units for people with disabilities, near the Maricopa Medical Center. Residences blend into the area's mixed-use character, and many people live up above first floor businesses. Many residents have lived n the area for many years, even as property values have increased.

2. In 2040, a diverse mix of people live in the 24th Street station area. While many people live in four- to five- story apartment buildings, there are also live-work dwellings, artist studios, and lofts. Old warehouse on the north side of Washington Street have been converted (adaptive reuse) to housing, mainly for professionals who commute by light rail to work downtown.

3. In 2040, housing is safe and affordable for the residents that have lived in the 32nd Street area (Near Celebrity Theatre) for years, as well as for new residents that have joined the community. There are a variety of different housing options, from four- to five- story apartment building, to two and three story homes.

4. In 2040, in additional to various housing options for the community, Van Buren Street (between 30th Street and 36th Street) provides housing to all members of the community. There is transitional housing for the homeless, anchored by UMOM New Day Centers, and, affordable housing for lower-income members of the community. The rundown buildings on the north side of the street have been replaced with new, safe places for people to call home, and existing houses have slowly improved through renovations.

5. In 2040, diverse housing options allow residents of all income levels to call the state land area home. Affordable housing for low-income residents and transitional housing for homeless and citizens with less resources gives anyone that wants to live in the area the opportunity to do so. A senior center provides housing opportunities for residents to remain in the area as they age. Most people live in two- to three-story buildings, but there are a few single-family homes as well.

6. In 2040, housing in the Grand Canal corridor has a unique relationship to the Grand Canal and nearby businesses. Connections to neighboring amenities give the greenway a neighborhood feel. With numerous outlying parks, recreational opportunities, community gardens, and shopping locations, the Grand Canal corridor hosts a diverse mix of residents. Within walking distance of the Grand Canal, transitional housing supports homeless and low-income residents. A walk along the Grand Canal corridor displays a distinctive environment created by the interaction between housing, business, and the Grand Canal itself.

Finally, a more detailed map captures desired housing development in four groups: Stabilized Housing (areas where rehabilitation is necessary), *Transit-Oriented Development Housing* (areas close to the light rail for taller new and adaptively reused mixed-used housing), *Urban Housing* (New and adaptive reuse housing not close to the light rail); and a category of *Housing Displacement Risk* (areas where the market could incentivize replacing single-unit homes in favor of new multi-unit developments). These designated areas inform where different interventions in the District should be implemented.

Figure 10. Map of the six areas of change identified by Gateway stakeholders

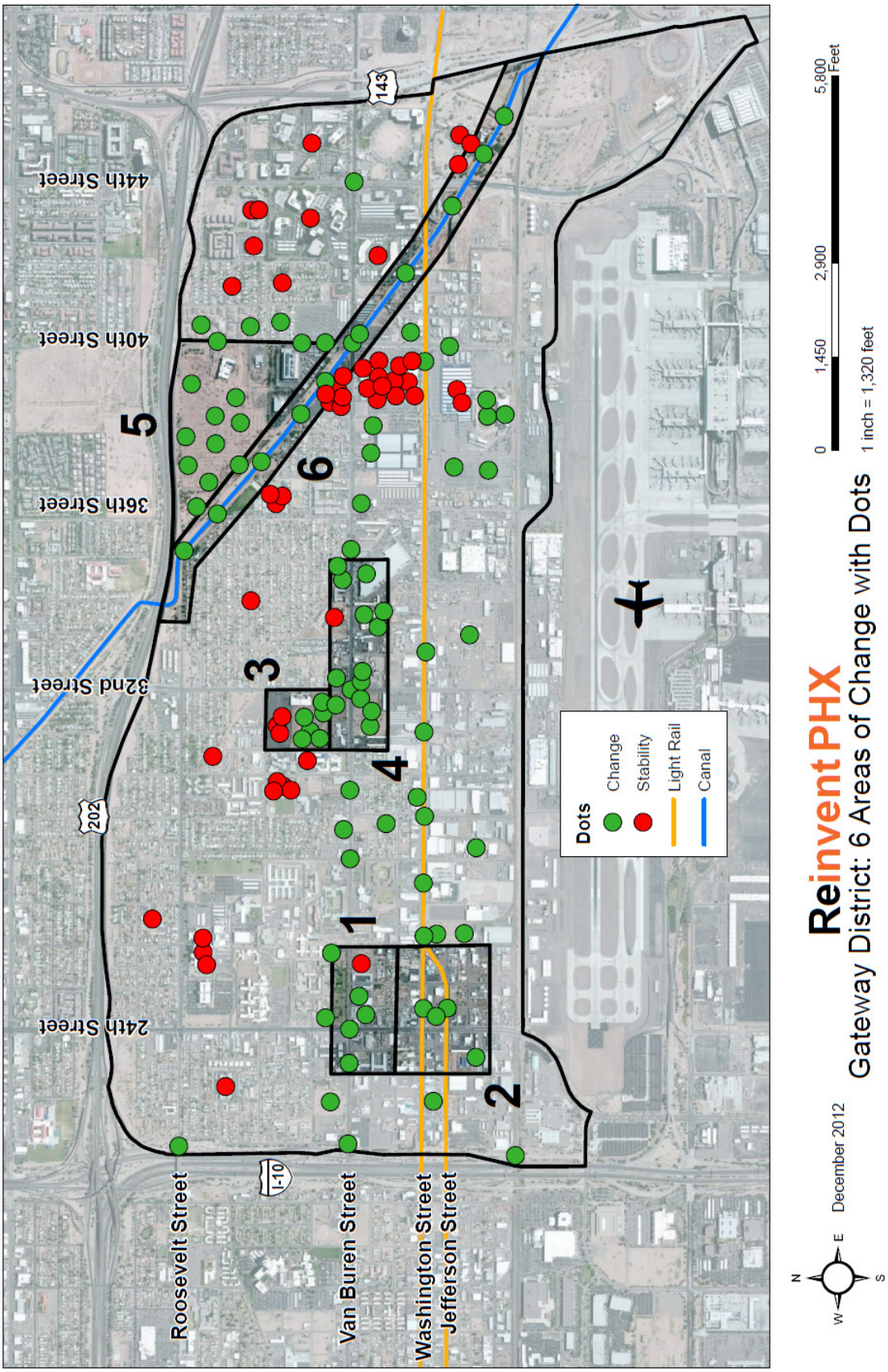
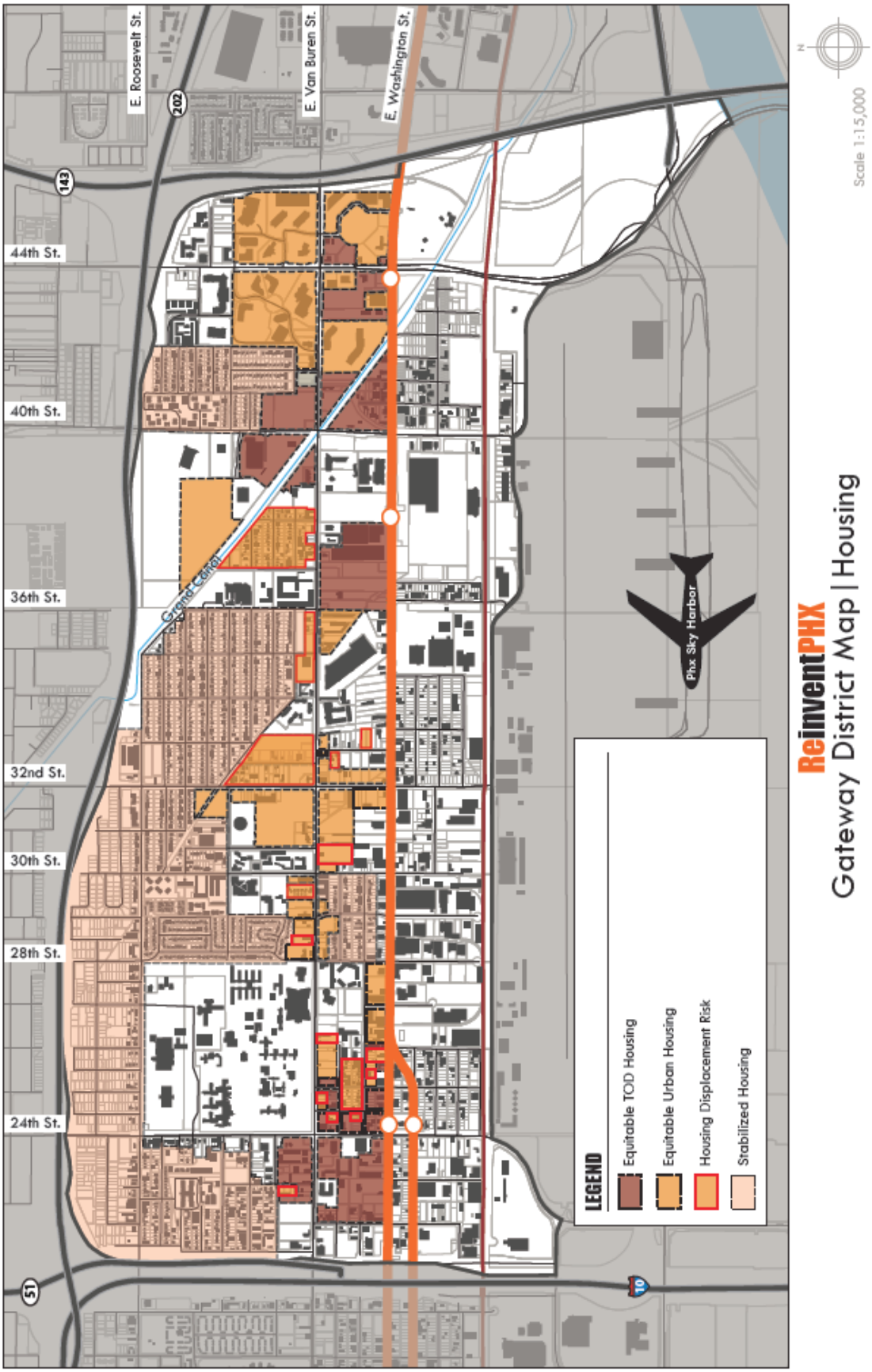


Figure 11. Housing vision map with categorized housing types



6.1.3. Theory of Change

It is assumed that the production of new multi-unit developments, adaptive reuse of motels for multi-unit and single-unit homes, in conjunction with broad single-unit home rehabilitation in the Sky Harbor Neighborhood and the single-unit neighborhoods north of Van Buren will create adequate and affordable housing options of sufficient quality across the district. If these housing units are constructed with an emphasis on health, visitability, and energy efficiency, these construction efforts will lead to a sustainable housing situation in the District. Due to the amount of vacant land, underutilized motels, and low-quality single- and multi-unit homes, there is an opportunity to invest in new construction, rehabilitation, and adaptive reuse. In the following, we describe how these interventions and corresponding investment options can be enacted over the next 30 years.

6.2. Linking Sustainable Housing Goals to Interventions and Investment Options

As described before, the overall and specific sustainable housing goals are the reference point for developing the strategy and its interventions. Yet, the strategy aims at coordinating interventions that achieve multiple objectives at the same time. The interventions of new construction, rehabilitation, and adaptive reuse all contribute to achieving the five goals of sustainable housing. Thus, from the perspective of implementation it is more useful to use the interventions as organizing principle, and design them in ways that they contribute to as many goals as possible. Therefore, we describe each intervention separately in the subsequent sections, detailing the specific investments, actions, resources, implementation tools, etc.

Table 15. Linking Sustainable Housing goals to Interventions and Investment Options

Goals	Strategy		
	New Construction Intervention	Rehabilitation Intervention	Adaptive Reuse Intervention
1. Meeting demand with adequate housing options	Construction of new units and unit types and costs to better match demand	Rehabilitation of existing units can help better match demand	Re-use of existing buildings to add units and unit types can help better match demand
2. Providing sufficient quality of housing and promoting healthy housing conditions	Building code enhancements for new construction can improve environment and health	Rehabilitation of older housing stock to address issues of environment and health	The re-use process can be used to address issues of environment and health
3. Securing affordability of housing	Construction of new units at affordable prices can improve affordability	The rehabilitation of existing units at affordable prices can improve affordability	The re-use of existing buildings for housing can add new units at affordable prices

4. Conserving natural resources	Green and energy efficient construction codes can make new homes more resource efficient	Green and energy efficient rehabilitation can improve resource efficiency	Re-use of older building stock avoids the environmental costs of new construction
5. Maintaining valuable cultural and historical character	Frontage and other design codes can reinforce neighborhood character	Rehabilitation of older homes can reinforce neighborhood character	Re-use of older buildings can reinforce and preserve neighborhood character

6.3. New Construction Intervention

New construction entails producing new multifamily apartments and condos on vacant and under-utilized land, as well as building single-family homes on small vacant lots in current residential neighborhoods.

6.3.1. Core Components

Aspired Sustainability Impacts

New construction of multifamily and single-family unit can achieve positive outcomes for all five housing goals. For example, construction of new units appropriate for specific needs (e.g., for elderly) and at appropriate costs can help better meeting demand. Building code enhancements for new construction can foster both healthy housing conditions and environmental performance. The goal of resource efficiency can be met with green and energy efficient construction codes. Frontage and other design codes for new construction can reinforce neighborhood character. Construction of new units at affordable prices can improve housing affordability.

Through this intervention, the following *specific* sustainable housing targets will be achieved by 2040:

- 8,600 newly constructed units (including 3,000 affordable units)
- 5,200 adjusted buildings taking advantage of new codes that support construction of healthy, green, and Americans with Disabilities Act-compliant homes
- 5 pilot projects that demonstrate new construction of accessible, healthy, and resource-efficient multifamily housing in the next 10 years (2014-2023)

Intervention Points

The current system has produced unfit and unaffordable housing for many residents in the Gateway District. New organizational capacity is needed to address the lack of knowledge and motivation to create the necessary financing packages for affordable multifamily housing projects in the District. Resource efficiency and visitability measures need to get incentivized.

Investment Options

Within the intervention of new construction, there are two investment options: the construction of new single-family houses, and the construction of new multifamily houses. There is a significant difference between multi-unit and single-unit construction, and each investment is appropriate for different zones of the District (Fig. 5). New construction of multifamily is appropriate in transit-oriented development housing zones by station areas, while new construction of single family homes is appropriate in rehabilitation zones where there are concerns about culturally and historically sensitive housing that does not disrupt the current nature of those zones. In terms of the greatest impact, new construction of multifamily homes in transit-oriented development zones should be made a priority, while single-family new construction adds additional units, but not as efficiently.

Intervention Actions

The following actions are critical in accomplishing the goals and targets outlined above:

1. Create a community development corporation for building new multifamily housing.
2. Support policies that allocate resources for construction of new affordable units.

3. Create a pilot project to demonstrate the ability to create affordable transit-oriented development housing in the District (24th Street Station).

4. Build new single-family houses on small parcels of vacant land in neighborhoods north of Van Buren Street.

Resources

The following are resources are needed to support the intervention of new construction (resources that already exist (assets) are indicated in italics):

- *City of Phoenix Housing and Neighborhood Services Departments*
- *Developer/homeowner knowledge of relevant design components and implementation processes.*
- *Native American Connections, Chicanos por la Causa, Local Initiatives Support Corporation, and other organization with capacity for financing and developing multifamily developments that include affordability financing*
- *Anchor businesses such as Sky Harbor Coalition Businesses, Honeywell, and hotels*
- *Federal financing mechanisms*
- Private financing and developers that are willing to invest in District

Barriers

- Developer opposition to new codes
- Lack of revenue and financing for construction and adherence to progressive code
- Political opposition to regulations to support health, resource efficiency, and visitability
- Lack of coordination between developers to improve resources use efficiency

Intervention Timeline

The timeline outlines what a transition towards reaching Gateway's sustainable housing vision could look like over the next 30 years driven by new constructions. Much can change during this time; thus, the transition strategy must be revisited and updated.

2020

- Create a community development corporation for the Gateway District using local knowledge and funding from Local Initiatives Support Corporation, La Raza, Discovery Triangle and Sustainable Community Partners.
- Pass immediate (short-term, low-cost, low-hanging fruit) legislation to improve visitability, energy efficiency, and affordability
- Complete pilot new construction of multi-family units close to the 24th Street Station with the support of Local Initiatives Support Corporation, Gateway Community College, and other partners.
- Create an recognition Program for sustainable builders in the Gateway District

2025

- Increased multi-family construction along 24th, 38th, and 44th Street Stations, and the State-owned land off of 40th Street.
- Examine policies to support affordability such as live near work programs for local school districts and companies that incentivize new construction or adaptive reuse for multifamily housing

2030

- New construction of multi-family units near newly built 32nd Street Station, along the entirety of Van Buren, and around the Celebrity Theater.
- Pass further measures to increase affordability, accessibility, health, and resources efficiency.
- Develop long-term funding solution to determine long-term affordability

6.3.2. Details on Investment Options for New Construction

Constructing New Multi-Unit Housing

Multi-unit housing include duplexes, triplexes, townhomes, and apartments of any size. Housing units that include other uses such as ground floor retail are also considered multi-unit housing.

Aspired Sustainability Impacts

Through this investment option, the following *specific* sustainable housing targets will be achieved by 2040:

- Additional units available for elderly (to meet demand)
- Additional units with low-income suitability (regional affordability)
- Reduced housing costs (additional affordable housing)
- Enhance quality of housing and environmental performance

New construction will improve housing diversity and will allow low-income residents, singles, and other small households such as the elderly or college students to reside in the District. New units will be safer and have better air quality, as they will be built under better construction standards and will not have hazardous materials such as asbestos and lead-based paint. Further, denser housing also has less of an environmental footprint in terms of energy and water use. For example, it will take less water to maintain a shared yard that is used by many people, rather than watering many individual yards. New multi-unit housing will reduce the percentage of quality housing to below 0.1% and reduce the average cost of housing; instead of spending 23% of total income, residents will only have to spend about 15% of their total income on housing.

Implementation Tools

The following implementation tools can be used to implement multi-unit new construction:

Financing
U.S. Department of Housing and Urban Development financing (Including Section 200s)

Partnerships
Community development corporations

Codes
Frontage codes

Capacity Building
Affordability financing training for developers

Incentives
Tax credits
Expedited permitting

Constructing New Single-Unit Housing

Single-unit housing consists of housing units that are detached and often having a garage and front and back yards with fencing to separate property lines. New single-unit housing will only be constructed where zoning allows only single unit housing or in historic preservation zones.

Aspired Sustainability Impacts

- Enhance fitness
- Additional units available for elderly
- Increase energy efficiency
- Preserve historical character

New single unit construction will contribute to housing diversity in the district, enable larger families to remain in one place throughout the family lifecycle, and provide housing to families who need more space. It will reduce the percentage of poor quality housing to below 0.1% and improve the health, energy efficiency, and visitability of the district if built using sustainability and visitability standards (i.e., energy efficient appliances, better air filtration systems, avoidance of asbestos and lead-based paint, etc.).

Implementation Tools

The following implementation tools can be used to implement new construction of single-family units:

Financing
U.S. Department of Housing and Urban Development financing (Including Section 200s)
Community Development Block Grants
HOME Investment Partnerships Program
New Market Tax Credits
Public Housing Program
Local Housing Trust Fund

Partnerships
Community development corporations
Neighborhood Solar Partnerships
Community Land Trust

Codes
Visitability codes
Green codes

Capacity Building
Affordability financing training for developers

Incentives
Tax credits
Renewable energy incentives
Expedited permitting

6.4. Rehabilitation and Revitalization Intervention

This intervention entails rehabilitating multifamily apartments and condos on vacant and under-utilized land, as well as rehabilitating single-family homes in current residential neighborhoods. Revitalization goes beyond physical rehabilitation and includes cultural programs, crime prevention, or social cohesion building.

6.4.1. Core Components

Aspired Sustainability Impacts

Rehabilitation and revitalization of multi-unit housing and single-family housing can achieve all five sustainable housing goals. Rehabilitation of existing units can help better match demand, and rehabilitation of older housing stock can foster healthy housing conditions and environment performance. The rehabilitation of existing units at affordable prices can improve affordability, while green and energy-efficient rehabilitation can contribute to resource conservation. The rehabilitation of older homes can reinforce neighborhood character.

Through this intervention, the following *specific* sustainable housing targets will be achieved by 2040:

- 5200 revitalized single- and multi-family units in the Gateway District in order to increase affordable housing options
- 1100 rehabilitated units with currently very low fitness scores
- 70 units with basic amenities through adjusted codes and/or enforcement
- 5 pilot projects to demonstrate rehabilitation of single-family units
- 5 pilot projects to demonstrate rehabilitation of multi-family units

Intervention Points

While it is clear that certain economic development and education drivers need to be address to increase income, so that affordability measures improve, there is a need to rehabilitate a large number of homes with very low fitness scores.

Investment Options

Within the intervention of rehabilitation, there are two investments: the rehabilitation of single-family houses, and the rehabilitation of multi-family houses. There is a significant difference between multi-unit and single-unit rehabilitation, and each investment is appropriate for different zones of the District (Fig. 5). Rehabilitation of multifamily is appropriate in transit-oriented development housing zones by station areas, while rehabilitation of single family homes is appropriate in rehabilitation zones where there are concerns about culturally and historically sensitive housing that does not disrupt the current nature of those zones. In terms of the greatest impact, rehabilitation of multifamily homes in transit-oriented development zones should be made a priority.

Intervention Actions

1. Adjust zoning and ordinances to support affordability, accessibility, health, and leadership in energy and environmental design standards

2. Create organizations to support revitalization of existing multi- and single- family.

3. Support policies that allocate resources for construction of new affordable units, and create a pilot project to demonstrate the ability to create affordable transit-oriented development housing in the District (24th Street Station).

Resources

The following are resources are needed to support the intervention of rehabilitation and revitalization (resources that already exist (assets) are indicated in italics):

- City of Phoenix Housing and Neighborhood Services Departments

- Developer/homeowner knowledge of relevant design components and implementation processes.

- Americans with Disabilities Act standards

- Anchor businesses such as Sky Harbor Coalition Businesses, Honeywell, and hotels

- Federal financing mechanisms

- Private financing and developers that are willing to invest in District

Barriers

- Developer opposition

- Lack of revenue and financing

- Political opposition to regulations to support health, resource efficiency, and visitability

- Inability of homeowners to access funds

Intervention Timeline

The timeline outlines what a transition towards reaching Gateway's sustainable housing vision could look like over the next 30 years driven by rehabilitations. Much can change during this time; thus, the transition strategy must be revisited and updated.

2020

- Single and multi-family homes: Create new zoning, ordinances, and design standards for inclusive design and green building for Phoenix with higher standards for units in Reinvent Phoenix Districts.

- Single family homes: Initiate homeownership provisions and support measures to avoid displacement with an emphasis on single family homes within half a mile of stations

- Single family homes: Complete retrofit pilot projects that build off of success of neighborhood stabilization programs and Energize Phoenix in Sky Harbor and Wilson Neighborhoods.

2025

- Single family homes: Fully supported city sponsored housing rehabilitation program that has had major success in Sky Harbor and Wilson, and is now targeting the rest of the District.
- Single family homes: Fully running District programs that support home ownership and retention for single-family homes.
- Single and multi-family homes: Lobby for strong displacement measures for homeowners and renters to retain socio-economic diversity in the District

2030

- Multi-family and single family homes: Complete healthy retrofits in the District (including lead and asbestos)
- Multi-family homes: Increase number of units in local agency managed public housing stock (Housing trust fund, community land trusts)
- Multi-family homes: New construction of multi-family units near newly built 32nd Street Station, along the entirety of Van Buren, and around the Celebrity Theater.

6.4.2. Details on Investment Options for Rehabilitation and Revitalization

Rehabilitating/Revitalizing Multi-Unit Housing

Multi-unit housing that is in poor condition (i.e., has hazardous materials such as lead or asbestos, is structurally compromised, etc.) will be rehabilitated, so that residents can reside in healthier, environmentally friendly, and visitable housing.

Aspired Sustainability Impacts

- Enhance housing fitness
- Reduce water consumption
- Foster district and regional affordability

Revitalized multi-unit housing will reduce the percentage of poor quality housing to below 0.1%. The vacancy rates will be lowered below 2% for owners and 8% for renters, down from the current vacancy rates of 6% and 17%, respectively. Furthermore, visitability design standards will be applied to revitalized housing, which will enable residency among the elderly and disabled, and thus enhance housing equity and accessibility. Revitalized housing will help improve resident's health by removing toxic materials, such as asbestos and lead-based paint, or blocking air pollution (soil vapor intrusion). It will also be more environmentally friendly. It will use energy more efficiently by having energy efficient appliances and systems (i.e. air conditioning, LED lighting). It will conserve water resources by using water-efficient appliances (i.e. low flush toilets, top loading washing machines) and by concentrating the water usage into a smaller area, thus requiring less piping and water pumping. It will also help mitigating the urban heat island effect.

Implementation Tools

Financing
U.S. Department of Housing and Urban Development financing (Including Section 200s)
Section 8
Community Development Block Grants
HOME Investment Partnerships Program
Low-Income Housing Tax Credit Program
New Market Tax Credits
HOPE VI Program
Section 202 Supportive Housing for the Elderly
Section 231 Program
Choice Neighborhoods Implementation Grant Program
Section 221(d)(3) Program
Section 220 Program
Section 221(d)(4) Program

Section 241(a) Program

Partnerships
Community development corporations
Local Housing Trust Fund

Codes
Frontage codes

Capacity Building
Affordability financing training for developers

Incentives
Tax credits
Expedited permitting

Rehabilitating/Revitalizing Single-Unit Housing

Single-unit housing that is in poor condition will be revitalized so residents can reside in healthier and environmentally-friendly housing.

Aspired Sustainability Impacts

- Reuse materials
- Enhance fitness
- Preserve historical character

Revitalizing single-unit houses can help lower percentage of poor quality housing to below 0.1% and help increase housing diversity. It can also enhance resident health and increase energy efficiency by using appropriate construction standards that lead to better air quality and avoiding toxic materials such as asbestos and lead-based paint. Installing more energy- and water-efficient appliances will reduce the environmental footprint of the unit. Furthermore, since single units typically are owner occupied; revitalizing them contributes to household savings and intergenerational wealth transfer.

Implementation Tools

Financing
U.S. Department of Housing and Urban Development financing (Including Section 200s)
Community Development Block Grants
HOME Investment Partnerships Program
New Market Tax Credits
Energy Innovation Fund PowerSaver Pilot 203(k) Program

Partnerships
Community development corporations
Local Housing Trust Fund

Codes
Frontage codes

Capacity Building
Affordability financing training for developers

Incentives
Tax credits
Expedited permitting

6.5. Adaptive Reuse Intervention

The adaptive reuse intervention only has one investment, which is the adaptive reuse of industrial and commercial buildings into multifamily housing. New multi-unit housing created via adaptive reuse refers to the utilization of underutilized or abandoned commercial or industrial buildings as housing. Since commercial and industrial buildings tend to be larger and occupy large lots, new housing built via adaptive reuse will most likely consist of multiple units.

6.5.1. Core Components

Aspired Sustainability Impacts

Re-use of existing buildings to add units and unit types can help better match demand. It also can enhance affordability, if new units are offered at affordable

prices. If adaptive reuse takes advantage of existing building material, it avoids the environmental costs of new construction. Re-use also contributes to preserving neighborhood character, while creating 'living history' through adaptation and modification.

- 8,600 newly constructed units (Including 3,000 affordable units)
- 5,282 Adjusted building codes that support new construction of healthy, green, and visitability
- 5 pilot projects that demonstrate new construction of accessible, healthy, and resource efficient multifamily housing in the first 10 years
- Reuse materials
- Reduce water consumption
- Increase district affordability

By adapting old industrial or commercial buildings into new, multi-unit housing will improve the community's vibrancy and aesthetics and reduce the environmental footprint of the area. Cleaning up and repurposing old or vacant buildings may improve the safety of the area by reducing the number of vacant buildings and having more "eyes on the street." The new construction may reduce the percentage of poor quality housing to below 0.1% and may improve resident and environmental health by improving air quality due to new, more energy efficient appliances and better construction standards. By adapting buildings that are near public transit or within walking distance to areas of employment, the amount of money people spend on housing and transportation costs may be reduced. People currently spend an average of 23% of their total income on transportation, which can be reduced to below 15% with the addition of sufficient quantity of new, well-placed multi-unit housing.

Intervention Actions

1. Adjust zoning and ordinances to support affordability, accessibility, health, and leadership in energy and environmental design standards for adaptive reuse projects
2. Create organizations to support adaptive reuse of warehouses and former motels
3. Support policies that allocate resources for adaptive reuse of building for new affordable units, and create a pilot project to demonstrate the ability to create affordable transit-oriented development housing in the District (24th Street Station).

Resources

- *City of Phoenix Planning and Development Services Department and their Adaptive Reuse Program*
- *Developer/homeowner knowledge of relevant design components and implementation processes*
- *Federal financing mechanisms*
- Private financing and developers that are willing to invest in District
- Plentiful building stock of old motels along Van Buren

Barriers

- Developer opposition
- Lack of revenue and financing
- Political opposition to regulations to support health, resource efficiency and accessibility
- Inability of homeowners to access funds
- Environmental conditions of old buildings and properties

Intervention Timeline

The timeline outlines what a transition towards reaching Gateway's sustainable housing vision could look like over the next 30 years driven by adaptive reuse. Much can change during this time; thus, the transition strategy must be revisited and updated.

2020

- Single and multi-family homes: Create new zoning, ordinances, and design standards for inclusive design and green building for Phoenix with higher standards for units in Reinvent Phoenix Districts.

- Single family homes: Initiate homeownership provisions and support measures to avoid displacement with an emphasis on single family homes within half a mile of stations

- Single family homes: Complete retrofit pilot projects that build off of success of neighborhood stabilization programs and Energize Phoenix in Sky Harbor and Wilson Neighborhoods.

2025

- Single family homes: Fully supported city sponsored housing rehabilitation program that has had major success in Sky Harbor and Wilson, and is now targeting the rest of the District.

- Single family homes: Fully running District programs that support home ownership and retention for single-family homes.

- Single and multi-family homes: Lobby for strong displacement measures for homeowners and renters to retain socio-economic diversity in the District

2030

- Multi-family and single family homes: Complete healthy retrofits in the District (including lead and asbestos)

- Multi-family homes: Increase number of units in local agency managed public housing stock (Housing trust fund, community land trusts)

- Multi-family homes: New construction of multi-family units near newly built 32nd Street Station, along the entirety of Van Buren, and around the Celebrity Theater.

Implementation Tools

Financing

U.S. Department of Housing and Urban Development financing (Including Section 200s)
Community Development Block Grants
HOME Investment Partnerships Program
Section 8
Low-Income Housing Tax Credit Program
New Market Tax Credits
Section 202 Supportive Housing for the Elderly Program
Section 811 Supportive Housing for People with Disabilities Program
Section 231 Program
Section 232 Program
Section 213 Program
Section 221(d)(3) Program
Section 220 Program
Section 221(d)(4) Program

Partnerships
Community development corporations
Local Housing Trust Fund
Community Land Trust

Codes
Frontage codes

Capacity Building
Affordability financing training for developers

Incentives
Tax credits
Expedited permitting

6.6. Details on Implementation Tools for New Construction, Rehabilitation/ Revitalization, and Adaptive Reuse

Table 16. Details on Implementation Tools for New Construction, Rehabilitation/Revitalization, and Adaptive Reuse

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
FINANCING													
Community Development Block Grant Program	Grant	New or Rehab or Reuse MF	Federal	State / City	Any	Unspecified (Locate near transit to reduce transportation cost burdens)	http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs	X	X	X	x		X
HOME Investment Partnerships Program	Grant, Gap Funding	New / Rehab MF	Federal	Developers	Below Market required, including very-low incomes	Unspecified (Locate near transit to reduce transportation cost burdens)	http://portal.hud.gov/hudportal/HUD?src=/hudprograms/home-program	X		X			X
Low Income Housing Tax Credit Program	Tax Credit	New MF	Federal	Developers	Below Market required	TODs receive higher ratings	http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/affordablehousing/training/web/lihtc/basics	X		X			X
New Market Tax Credits	Tax Credit	New MF	Federal	CDC / Community Development Entity	Any	Distressed Areas – HUD Desiganted Renewal Communities (RCs), Empowerment Zones (EZs) and Enterprise Communities (ECs)	http://www.communityfundinggroup.org/nmtc-overview.html	X		X			X
Choice Neighborhood Program	Grant	Rehab of existing public housing MF	Federal	City	Below Market	Existing public housing		X		X			X

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Public Housing	Grant	New MF	Federal	City, County or State	Below Market	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			X
Housing Choice Vouchers (of Section 8)	Rent Subsidies to Residents	MF/ SF	Federal	City, Locality	Below Market	Unspecified (Locate near transit to reduce transportation cost burdens)	http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/hcv/about/fact_sheet			X			X
Project-Based Subsidies (of Section 8)	Rent Subsidies to Residents of new/rehab MF projects	MF	Federal	City	Below Market	Unspecified (Locate near transit to reduce transportation cost burdens)	http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/rfp/s8bkinfo	X		X			X
Housing Trust Fund	Rent Subsidies to Residents	New or Rehab or Reuse MF/ SF	Local	City, State	Below Market	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			X
Section 202 Supportive Housing for the Elderly Program	Grants or Rent Subsidies to Residents	Rehab MF / SF	Federal	Developers	Below Market AND Over 62 yo, OR Disabled	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 231 Program	Mortgage insurance	New / Rehab MF	Federal	Developers	Over 62 yo, OR Disabled	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Section 811 Supportive Housing for People with	Grants or Rent Subsidies to Residents	New MF	Federal	Developers	Below Market AND Over 62 yo, OR Disabled	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 232 Program	Loans	New / Rehab MF	Federal	Developers	Sick or disabled seniors	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 213 Program	Loan Insurance	Cooperative Housing Construction or Acquisition MF / SF	Federal	Cooperative	Any	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 221(d) (3) program	Loan Insurance with LIHTC	New / Rehab MF or Cooperative	Federal	Developers / City	Moderate Income OR Over 62 yo, OR Disabled	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 220 Program	Loan Insurance	New / Rehab MF / SF	Federal	Developers / City		"Urban Renewal"		X		X			
Section 221(d) (4) Program	Loan Insurance	New / Rehab MF	Federal	Developers / City	Families, Seniors or Disabled	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Section 241(a), 542(b)	Loan Insurance	Rehab / Additions MF	Federal	Developers / City	Below Market	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Program Energy Innovation Fund PowerSaver Pilot 203(k) Program	Loans	Rehab for energy efficiency < 4 units	Federal	Homeowners or property owners	Any	Unspecified				X	X		X
Presales	Presale	New	Federal	Property owners	Any	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			
Tax credits for solar power installation	Tax credit	New or Rehab or Reuse MF	State and federal	Homeowners or property owners	Any	Unspecified		X		X	X		X
Private solar finance bundling firms	Tax credit/ loan	New or Rehab or Reuse MF	State and federal	Homeowners or property owners	Any	Unspecified		X		X	X		X
Neighborhood Stabilization Program	grant	New or Rehab or Reuse	City	Homeowners or property owners	Any	Unspecified	http://www.nhsphoenix.org/neighborhood_stabilization.html		X	X	X	X	X
PARTNERSHIPS													
Community Land Trust	Resident-based	New or Rehab or Reuse MF / SF	Local	Residents	Any	Unspecified (Locate near transit to reduce transportation cost burdens)	http://www.newtowncdc.org/?page_id=168	X		X			X
Community Development Corporations	Business- or resident-based	New or Rehab or Reuse MF / SF	Local	Residents and/or businesses	Any	Unspecified (Locate near transit to reduce transportation cost burdens)	http://www.phxrevitalization.org/aboutus.htm	X		X		X	X
Community Solar Partnerships	Property-owner based	New or Rehab or Reuse MF / SF	Local	Residents	Any	Unspecified	http://www.nrel.gov/docs/fy12osti/54570.pdf			X	X	X	

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Condos with a Homeowner Association	Resident-based	New	Local	Residents and/or businesses	Any	Unspecified				X		X	X
Neighborhood Association	Resident-based	New or Rehab or Reuse	Local	Residents	Any	Unspecified						X	X
Reclaimed Materials Partnership	Business-based	New or Rehab or Reuse	Local	Residents	Any	Unspecified	http://www.stardustbuilding.org/				X		
Partnerships for energy efficiency in multifamily housing	Property-owner based	MF	Local	Residents and/or businesses	Any	Unspecified	http://www.cntenergy.org/media/Engaging-as-Partners-in- Energy-Efficiency-MF-Housing-and-Utilities-Final-012512.pdf			X	X		
Code Enforcement	City	New or Rehab or Reuse	City	Residents, Contractors, Developers, Landlords, Property Managers	Any	Unspecified	http://phoenix.gov/pdd/devcode/buildingcode/index.html		X		X		
Community Benefit Agreements	Contract between developer, city and	New or Rehab or Reuse	City	City, Developers,	Any	Unspecified	http://communitybenefits.blogspot.com/ http://www.azcentral.com/news/election/topstories/	X		X	X	X	X
Community Amenities (Parks, community centers, libraries)	Amenities	Any	City	City, Developers,	Any	Unspecified (Locate near transit to reduce transportation cost burdens)				X		X	X

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Support for Neighborhood Events	Programs	Any	City	City,	Any	Unspecified						X	X
CODES													
Frontage Codes	Zoning Codes	New	City	Planning Department	Any	Unspecified	http://www.formbasedcodes.org/taxonomy/term/21					X	
Building codes to improve indoor air quality	Building Codes	New or Rehab or Reuse	City	Planning Department	Any	M52 area	http://www.mah.gov.on.ca/AssetFactory.aspx?did=8790		X				
Visitability Codes	Building Codes	New or Rehab or Reuse	City	Planning Department	Any	Unspecified	Pima County Inclusive Home Design Ordinance http://cms3.tucsonaz.gov/files/dsd/Inclusive_Hm_Deisign_commentary.pdf http://www.cga.ct.gov/2010/rpt/2010-R-0101.htm	X		X			
Energy Conservation (Building) Code	Building Codes	New or Rehab or Reuse	City	Planning and Development – Building Codes	Any	Unspecified	International Energy Conservation Code (2012) – Adopted by the City of Phoenix http://publicecodes.cyberregs.com/icod/iecc/2012/index.htm			X	X		
Preserve Single-Family Home zoning in areas of preservation	Zoning Codes	New or Rehab or Reuse	City	Planning Department	Any	Single family home preservation areas		X	X	X	X	X	X

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Inclusionary Zoning	Zoning Codes	New or Rehab or Reuse	City	Planning Department	Low Income	Unspecified (Locate near transit to reduce transportation cost burdens)		X		X			X
Capacity Building (Knowledge)													
Financial literacy training	Skills	All	City or County or 3rd Party	Residents	Any	Unspecified	http://iamempowered.com/get-empowered/housing-financial-literacy http://www.nhsphoenix.org/education.html http://www.newtowncdc.org/?p=69			X			X
Alternative transportation programs	Knowledge	All	City or County	Residents	Any	Unspecified	http://www.southernenvironment.org/uploads/publications/connecting_home_and_work.pdf			X			X
Developer capacity building for meeting/ exceeding code requirements	Skills	All	City	Developers Contractors	Any	Unspecified	http://phoenix.gov/pdd/devcode/buildingcode/index.html	X	X		X		
Shade Tree programs	Skills, materials, and knowledge	All	City or County	Property owners	Any	Unspecified	http://www.aps.com/en/residential/savemoneyandenergy/coolingheating/Pages/shade-tree-program.aspx			X	X		

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Sound Mitigation Services	Knowledge and materials	All	City	Property owners	Property owner, renter	Airport Noise Contour Area	http://skyharbor.com/community/simsInfo.html		X				
Solar Systems Residential Guidelines	Knowledge	New or significant remodels of SF / Duplex	City	Developers, Contractors, Property owners	Property owner, renter	Unspecified	http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/@trt/documents/web_content/dsd_trt_pdf_00367.pdf			X	X		
Water Conservation Education	Knowledge	All	City, County, State	Property owner, renter	Property owner, renter	Unspecified	http://www.azwater.gov/azdwr/StatewidePlanning/Conservation2/				X		
Vapor Intrusion Guidelines	Knowledge	New or Rehab	City	Developers, Contractors, Property owners	Property owner, renter	Unspecified	http://phoenix.gov/webcms/groups/internet/@inter/@dept/@dsd/@trt/documents/web_content/dsd_trt_pdf_00589.pdf		X				
Landscape Design Review Guidelines	Knowledge	New commercial, industrial and subdivision	City	Developers, Contractors, Property owners	Property owner, renter	Unspecified	http://phoenix.gov/pdd/development/sitecivil/landscape/index.html		X				
Landscape Design Review Guidelines	Knowledge	New or significant remodels of SF / Duplex	City	Developers, Contractors, Property owners	Property owner, renter	Unspecified	http://phoenix.gov/pdd/development/permits/residential/resdocs/resguides/index.html		X				
Document demographic change in neighborhoods	Knowledge	New or Rehab	City		Any	Unspecified	Document and map displacement pressures within existing planning process (Consolidated planning, Annual Action Plan)	X		X		X	X

Technical Program Title	Sub Type	Intervention Investment Option	Source	Applicant	Beneficiaries Resident Type	Location	Sources / Examples / Links	Meeting Demand with Options	Healthy Housing	Affordability	Resource Efficiency	Neighborhood Character	*Cross-Cutting Goal:* Anti-Displacement
Incentives													
Intensity Bonus	Financial	New MF	City	Developers	Any	Station areas	http://www.wahpdc.org/densitybonus.htm http://www.sddt.com/news/article.	X		X			X
Modified Parking Standards	Financial/ Space	New MF	City	Developers	Any	Station areas	http://www.huduser.org/rbc/newsletter/vol7iss2more.html	X		X			X
Expedited Permitting	Time	NA	City or County	Developers	Any	Station areas	http://www.wahpdc.org/expermitting.html	X		X			X
Fee Waiver	Financial	All	City or County	Developers	Below market	Station areas	http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NC46F	X		X			X
Property tax abatement	Financial	MF/AR	City or County	Developers	Any	Station areas	http://www.mitod.org/	X		X			
Incentives for ENERGY STAR	Financial	New/Rehab	Federal	Developers or property owners	Any	Unspecified	http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_incentives			X	X		
Incentives for Adaptive Reuse	Financial	Reuse	City	Developers or property owners	Any	Unspecified	http://phoenix.gov/pdd/services/permitservices/arp.html	X		X			
Green Construction Incentives	Financial	New / Rehab / Reuse	City	Developers, contractors or property owners	Any	Unspecified	http://transformgov.org/en/Article/100607/Phoenix_AZ_Offers_FirstEver_Reduced_Permit_Fees_for_Green_Building		X		X		

6.7. Synthesis - Action Plan for Sustainable Housing in Gateway

The following plan details the aforementioned intervention actions that government, non-profits, businesses, residents, and Steering Committee members can take to implement the sustainable housing strategy.

6.7.1. New Construction Intervention Action Plan

A. Creation of a community development corporation to support new construction initiatives in the Gateway District.

1. Gather key stakeholders (including non-profits and financial institutions) to review international best practices in community development corporations (Local Initiatives Support Corporation, Stardust Center, Arizona Chapter of the U.S. Green Building Council, Southwest Autism Research & Resource Center, St. Luke's Health Initiatives)

2. Create model community development corporations for ideal standards for the Phoenix, and Gateway specific (U.S. Green Building Council, Southwest Autism Research & Resource Center, and Stardust)

3. Celebrate Phoenix and Arizona examples of strong community development corporations

4. Create a charter for a new community development corporation that represents best practices, and learns from previous missteps.

5. Create an ambitious capital campaign to develop a $1—5 million fund to establish the community development corporation with the message of the critical need for a diverse and affordable housing stock close to the Airport (Arizona State University)

6. Hire a world-class leader for the community development corporation, and develop a strong board that has resident and expert representation.

7. Create a 5-year strategic plan for the community development corporation that is in line with Reinvent Phoenix

B. Support policies that allocate resources for construction of new affordable and high quality units

1. Policy Roundtable to determine long-term policy goals, and to draft interim ordinances to immediately improve affordability, accessibility, health, and resource efficiency.

1. Create an recognition Program for sustainable builders in the Gateway District for those that best demonstrate use of the new policies

C. Development of 24th Street Affordable Housing Pilot Project

1. Design and develop a strong pilot project near the 24th Street Station in collaboration with Gateway Community College, Discovery Triangle, the new community development corporation, The Steering Committee, and other key partners.

2. Building upon best local practices including Native American Connections, and Sustainable Communities Collaborative

6.7.2. Rehabilitation and Revitalization Intervention Action Plan

A. Policy creation that supports accessibility, health, and resource efficiency

1. Gather key stakeholders (including developers and financial institutions) to review international best practices in inclusive design, green, and healthy building (Local Initiatives Support Corporation, Stardust Center, Arizona Chapter of the U.S. Green Building Council, Southwest Autism Research & Resource Center, St. Luke's Health Initiatives)

2. Create model policy for ideal standards for the Phoenix, and Gateway specific (U.S. Green Building Council, Southwest Autism Research & Resource Center, and Stardust)

3. Celebrate Phoenix and Gateway examples of revitalization efforts that make major strides in improving accessibility, health, and resource efficiency (Gateway Steering Committee, COP Neighborhood Services and Housing Departments)

4. Support research that accesses the impact of policies (Arizona State University)

5. Meet with Councilmembers to discuss possible immediate changes to building code to work towards model policy given the success of highlighted efforts (Steering Committee, Southwest Autism Research & Resource Center, Local Initiatives Support Corporation, and Arizona State University)

6. Pass initial zoning and ordinances that move towards ideal code (City Council)

B. Initiate homeownership provisions and support measures to avoid displacement with an emphasis on single-family homes with ½ of stations.

1. Assemble homeowners in target areas and explain the threat of displacement, and the need to be proactive (Steering Committee, and Discovery Triangle)

2. Review anti-displacement measures, and have local residents work with Steering Committee, and local experts to determine most appropriate measures for Gateway (Steering Committee and Discovery Triangle)

3. Seek funding to ensure anti-displacement measures from local foundations, Sky Harbor Airport businesses, and the City of Phoenix (Steering Committee and Local Initiatives Support Corporation)

4. Explore option of a policy that would allow homeowners in high-value homes to move into new construction in the District that is affordable to them (Steering Committee, Arizona State University)

C. Complete retrofit pilot projects that build off of success of neighborhood stabilization programs and Energize Phoenix in critical neighborhoods.

1. Determine 1-3 small neighborhoods to pilot stabilization efforts (Steering Committee)

2. Establish a neighborhood stabilization program in these neighborhoods (Neighborhood Services Department)

3. Establish best practice standards for accessibility, health, resource efficiency (Neighborhood Services Department, Arizona State University, and St. Luke's Health Initiatives)

4. Set goals for number of homes to be revitalized through this process (Steering Committee)

5. Search for additional funding from financial institutions, and explore potential for alternative funding mechanisms such as community land trusts

6. Celebrate revitalization efforts, and set ambitious goals for 2025

6.7.3. Adaptive Reuse Intervention Action Plan

1. Adjust zoning and ordinances to support affordability, accessibility, health, and Leadership in Energy and Environmental Design standards for adaptive reuse projects (Steering Committee, Urban Land Institute, and Local Initiatives Support Corporation)

   a. Use best practices to draft new policies

   b. Review draft with experts and potential influential supporters

   c. Work with developers to pass aggressive policies that are still affordable to developers

   d. Meet with Council members to explain importance of new policies

   e. Work to pass new policies

2. Create position to support adaptive reuse of warehouses and former motels that builds on the success of Chicanos por la Causa with support from Downtown Phoenix Partnership, Discovery Triangle, and LISC.

3. Support policies that allocate resources for adaptive reuse of building for new affordable units, and create a pilot project to demonstrate the

ability to create affordable transit-oriented housing in the District (24th St. Station). (Chicanos por la Causa and Local Initiatives Support Corporation)

a. Site selection

b. Developer selection

c. Financing

Chapter 7 – Discussion and Conclusions

7.1. Critical role of Steering Committee, City Council, City Departments, Local Experts

The proposed strategy is intended to be a dynamic roadmap for people and organizations interested in sustainable change, helping them take ownership and collaborate to achieve the goals and targets set forth. The Steering Committee will play a critical role in executing this strategy, and motivating City Council, city departments, and local organizations to play significant roles in financing, regulating, and supporting the deployment of interventions. While city government cannot be the sole implementer of this strategy, it is critical that City Council and city departments find ways to align their funding, programming, and internal goals with this strategy. Village Planners and Steering Committee members need to be proactive in ensuring that councilmembers and city departments feel invested in supporting sustainable housing in the District. There is a critical role for local organizations and experts to provide support to the Steering Committee in implementing this strategy. Affordable housing advocates and sustainability experts can help prioritize and adapt interventions and investments based on monitoring, comparison, and new insights from across the country.

7.2. Testing Strategy, Interventions, Investments

More work is necessary to further understand the drivers of housing challenges, and to specify the vision for sustainable housing in order to further enhance the effectiveness and efficiency of interventions and investment options. Further research needs to scrutinize barriers to implementation and potential coping strategies. This report is intended to provide a basis for use-inspired research that will lead to a culture of evidence-based sustainable housing policy making in Phoenix.

Testing interventions and investments is critical to the success of this strategy. The Steering Committee and supporting staff needs to monitor which interventions are the most effective and efficient. Pilot projects can help determine the sustainability impacts of each investment. If financing, construction, or tenanting of those pilot projects proves to be difficult, then new construction of multifamily units might be a better investment to reach those targets. A culture of experimenting with and testing of investment options can lead to effective and efficient policymaking that demonstrates the highest impact with limited resources.

7.3. Coordination across Strategies

There is the need for a broader transition strategy across all six planning elements, as the housing strategy depends on other strategies. For example, safety programs, law enforcement, and provision of amenities are critical interventions for achieving the housing vision. Similarly, economic development goals of job training and employment will bolster capacity to increase affordable housing with reduced transportation costs. If these strategies are not pursued in concert, then it is possible that targets will not be reached.

7.4. Anticipating the next Set of Interventions, Investments, and Implementation Tools

Interventions and investments are not static. It is most likely that over the next decades, different interventions, investments, and implementation tools will be used to achieve the housing targets set forth. The Steering Committee and supporting city staff should attempt to anticipate possible future interventions, investments, and implementation tools not yet utilized in the current strategy. It is also likely that new financing mechanisms such as crowdsourcing or TIFs become viable options for the Gateway District, and could be essential implementation tools to reach housing affordability targets. While this strategy provides a solid set of intervention and investment options, it is important that these options are continually tested and monitored, while emerging options are explored.

7.5. Crafting the next 5-year Plan

It is also important to understand that there is a lot of uncertainty about what will occur in the future that might make aspects of this strategy obsolete. Therefore, it is important that the strategy is regularly revisited and revised. Every five-year cycle should give the Steering Committee, city departments, and other stakeholders

the opportunity to revisit progress towards the goals and targets, and craft a new five-year plan. This will give stakeholders an opportunity to decide on critical actions and what roles and responsibilities need to be fulfilled in the next five years. Lessons from the previous five years should inform realistic expectations for what can be accomplished. While the long-term view of this strategy is important in terms of 'keeping the eyes on the prize', it is critical that the Steering Committee and other stakeholders in the District organize themselves around short-term action plans.

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