“Hot Cities” and Rapid Growth; Experiences and Responses of Public Health and Urban Planning Departments

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Abstract

It is presumed rapidly growing “hot cities” adapt their planning and operations to meet their evolving population’s needs. These presumptions inspired the development of the following mixed-method, convergent parallel study. Data from urban planning officials across nine rapidly-growing “hot cities” were collected through pre-interview surveys and qualitative key-informant interviews. Thematic analysis was used to identify salient issues regarding awareness and perception of rapid population growth and resulting response from their public health and urban planning departments. Results indicate two main themes; Multidimensional Strain and Mitigation Strategies describe city experiences with rapid population growth effects and response. Across cities, urban planners expressed similar experiences of stress on land usage, housing, transportation, programming, and service delivery. Similar response patterns included evaluation and innovation of growth management strategies, enhanced collaboration, and equity considerations. This snapshot of rapid population growth repercussions, and current city mitigation strategies, may have future implications for public health and urban planning administrators in practice.

Introduction and Background

More than half of the world's population now reside in urban areas ¹⁻⁵. This urban growth is defined as both a spatial and demographic process by which populations shift towards town and city living ¹. Driving forces behind urban population growth include natural increases and migration ¹. Although natural increases are somewhat self-explanatory, migration can be explained by push factors (driving people away from their place of origin) or pull factors (attracting migrants to new places) ^{1(p19)}. Metropolitan areas and cities have the reputation as places where a better life can be lived ⁶. When this reputation is combined with pull factors including higher employment rates and salaries, better living standards, and a strong economy, migration can occur resulting in rapid population growth and urbanization ^{1,7}.

From a public health perspective, managing rapid population growth and urbanization calls for “integrated multisector city planning that prioritizes health and reduces inequalities” ^{8(p1)}.

However, there is limited literature available on the impact of rapid population growth on city infrastructure and public health services. A comprehensive literature search produced only two published studies. Gong et al., (2012) identified several public health repercussions caused by transition in the Chinese cities studied. These included negative associations with socioeconomic status and employment, strains on health care delivery, and increased opportunity for social structures to promote communicable diseases ⁷. Klick (2015) found rapid transition in Colorado, led the Latino community to feel isolated, both physically and politically, from civic engagement and services ⁹. Additionally, language barriers, financial insecurity, and lack of insurance were commonplace ⁹. Of note, both aforementioned studies recommended integration between city planning and public health. Acknowledging this research-to-practice gap makes capturing, studying, and adding to this literature important. Our aim was to understand how public health

and urban planning departments are responding to rapid population growth as the first step to mitigating this research-to-practice gap. We hypothesized, in rapidly growing cities, these departments would be aware of how population growth affects service delivery, programming efforts, and overall population health. And through collaboration, these two departments would mitigate the associated consequences.

Methods

City Selection

The U.S. Census Bureau American Factfinder dashboard was used to produce a list of initial cities for consideration. Inclusion criteria included: currently established U.S. city; 2018 population estimate of 250,000 or more; 10-year average growth rate of 15% or higher between 2008 and 2018 ^{10,11}. Race, ethnicity, percentage of population under 18 years of age, percentage of population over 65 years of age, per capita income, percentage of population below poverty, and population density were also extracted. An examination of each city in the sample was performed regarding governance structure and at what level (e.g., city or county) public health and urban planning departments were housed for selected cities.

Study Design

A convergent parallel mixed-methods design was used. Quantitative data was collected through pre-interview questionnaires and qualitative data were collected through key-informant interviews of officials from selected cities.

Quantitative

The pre-interview survey contained descriptive demographic and background information about the interviewee (e.g., race, ethnicity, age, education). The survey assessed personal awareness and perspectives on the interviewee's city concerning innovation, growth management,

infrastructure development, constituent concerns, relationship with the state government, and existing collaborative efforts. These questions were designed to supply context regarding how cities responded to growth, what helped or hindered their response, and what influenced decision-making. Survey data was analyzed using descriptive statistics.

Qualitative

Interview questions used were grounded in phenomenology ¹². WebEx video conferencing software was used to virtually facilitate and record all interviews. Consent to participate was obtained as part of the pre-interview survey. A purposive sampling process was used to identify interviewees at the administrative-level (e.g., assistant and associate directors). Administrative-level personnel working in public health and urban planning departments were sought as they could provide a holistic view of their department's operations, experiences, and future plans ¹³. If administrative-level personnel recommended another colleague of best-fit, that individual was contacted and interviewed. A thematic content analysis was performed using Atlas.ti.

Results

The initial list of 15 cities is shown in Table 1. Nine cities were selected based on the inclusion criteria including: Miami, FL; Orlando, FL; Tampa, FL; Charlotte, NC; Durham, NC; Raleigh, NC; Austin, TX; Fort Worth, TX; and San Antonio, TX. Each city has either its own public health department (33%), works in partnership with a county health department (56%), or uses a combined city/county approach (11%). All cities, with the exception of Durham, North Carolina, which has a combined city/county approach, have city-based urban planning departments.

Table 1. List of All and Selected Cities Meeting Inclusion Criteria

Population Information Source: US Census Bureau ACS				
City and State	County	2008 Population Estimate	2018 Population Estimate	2008-2018 Population Change
Irvine, California	Orange	196,895	282,572	43.51%
Miami, Florida	Miami-Dade	343,142	470,914	37.24%
Fort Worth, Texas	Tarrant	677,897	895,008	32.03%
Seattle, Washington	King	582,490	744,955	27.89%
Henderson, Nevada	Clark	243,106	310,390	27.68%
Raleigh, North Carolina	Wake	368,350	469,298	27.41%
Charlotte, North Carolina	Mecklenburg	685,002	872,498	27.37%
Durham, North Carolina	Durham	217,721	274,291	25.98%
Austin, Texas	Travis	777,783	964,254	23.97%
Orlando, Florida	Orange	232,337	285,713	22.97%
Aurora, Colorado	Adams	305,241	374,114	22.56%
Denver, Colorado	Denver	598,707	716,492	19.67%
Washington, D.C.	N/A	591,833	702,455	18.67%
San Antonio, Texas	Bexar	1,292,997	1,532,233	18.50%
Tampa, Florida	Hillsborough	341,137	392,890	15.17%

The administrative-level staff identified for each selected city were contacted a minimum of three times via email over three months for participation.

Pre-interview Questionnaire

Demographic Information

The majority of participants (67%) were 45-54 years of age and held master's degrees (71%). Additionally, 78% had been with their current employer for 10-20 years.

City Self-rating Responses

Interviewees were asked to personally rank their city on numerous factors: innovation, growth management, infrastructure development, awareness of constituent priorities and concerns, relationships with the state government, and collaboration. When comparing themselves to peer cities, the majority (67%) rated themselves *somewhat above average* with regard to innovation. All interviewees came from departments playing a key role in their city's growth and they all rated themselves at or *above average* for growth management. Their belief they are managing growth better than comparable cities is a point of interest, especially taking into consideration

their interview responses. While all officials rated themselves at or *above average* with regard to growth management, questions pertaining to infrastructure development did not follow the same pattern. Forty-five percent noted their city as having an *average* ability while less (33%) noted having a *somewhat below-average* ability to develop infrastructure. The remaining officials rated their city as having either a *somewhat* (11%) or *far above* (11%) *average* ability to develop infrastructure.

The majority of cities rated themselves as having a *somewhat above average* (67%) ability while others noted having a *far above* (22%) and *average* (11%) ability to assess community priorities. Regarding awareness of constituent concerns, all officials rated their city as being *above average*; presenting an even split between *slightly* (33%), *moderately* (33%), and *far above* (33%) *average*. Over half of cities (56%) rated themselves as having an *average* relationship with their state government and the remainder were split; 22% having a *somewhat above* or *far above average* relationship and 22% having a *somewhat below* or *far below average* relationship with their state's government. With regard to collaboration, 45% rated themselves as *average* while 22% rated themselves *somewhat above* and 11% rated themselves *far above average*. Lastly, the interviewees ranked factors by level of importance concerning influence over their decision-making practices (Table 2); with the first being the most influential and the last being the least influential on office decision-making. The data in Table 2 shows the importance of local factors rather than those associated with higher level governments.

Table 2. Decision-making Factors Ranked by Level of Importance

1. City or County Leadership	8. State Leadership
2. Local Agenda Setting	9. Centralization/Decentralization of the State
3. City or County Budget	10. State Agenda Setting
4. Level of Autonomy	11. Federal Budget
5. Relationship w/other Cities/Counties with the State	12. Federal Leadership
6. Relationship with the State	13. Federal Agenda Setting
7. State Budget	

Key-informant Interviews

Thematic analysis identified two main themes; Multidimensional Strain and Mitigation

Strategies, with several sub-themes. Theme-relevant direct quotes are provided in Tables 3 and 4.

Multidimensional Strain

The term “rapid” was deemed acceptable by all interviewees to describe their city's population growth. With regard to demographic transition, most (67%) experienced growth in minority populations. This same percentage also experienced a shift towards a younger demographic (i.e., millennials; between 25-40 years of age) and growth in their aged population. Of the experiences captured, common themes resonated as a result of rapid population growth including strains on land usage, housing, and public transportation.

Land Usage

All interviewees noted issues with zoning, population density, and housing; all of which are relevant to public health. Of the cities, 33% opted to use annexation as their primary growth management tool while others, like Miami which does not have annexation as an option due to limited unincorporated land availability, focused on infill development (i.e., growth in underdeveloped areas). Zoning ordinances were described as a double-edged sword. Cities noted them as impediments to growth management, if they were antiquated, while also practical for managing rapid growth if adequately used. Rapid population growth caused 56% of the cities to realize their zoning ordinances were antiquated. Cities that realized this acknowledged their

ordinances hindered their ability to efficiently and effectively absorb their new population and minimize strains on utilities, transportation, and the housing market.

Housing

Housing availability and affordability was an issue 67% of the cities experienced following their population boom. With growth upwards of 30,000 persons annually, the cities noted not being able to satisfy the housing demand resulting in higher costs of living. The term “housing crisis” was used by 33% of the officials to describe their city’s situation (Austin, Charlotte, Durham). Reasons for housing shortages included antiquated zoning ordinances (Charlotte, Durham, Fort Worth, Raleigh, San Antonio), an inability to properly incentivize infill development (Durham, Fort Worth, Orlando, Raleigh), and an inability to counterbalance the effect of gentrification in neighborhoods (Durham).

Transportation

Access and affordability of public transportation was a concern 56% of officials shared. As cities expanded in response to growth, either upward or outward, they faced a new issue; the adequacy and equity of public transportation. Expanding transportation services proved difficult as these developments can result in higher utility costs, which contribute to increased prices for consumers and limits to cross-jurisdictional collaboration.

Programming Efforts

Participants were asked to discuss how their rapid growth affected programming efforts. As these cities experienced growth, some shifted the prioritization and development of programs to focus on the revitalization of designated corridors (e.g., downtown areas), annexation, and incentivizing development. Fifty-six percent of cities noted that in order to focus development and related programs as a means to incentivize infill development, they needed to modify

ordinances to incorporate mixed-use zoning. Additionally, due to the aforementioned effect population growth had on the housing market, these cities had to reevaluate housing development incentives, taxation, and assistance programming to mitigate displacement.

Service Delivery

The most commonly experienced impact rapid population growth had on service delivery was in regard to civic engagement. As cities found their populations becoming not only larger but increasingly diverse, varying in age, and physically dispersed, cities had to reevaluate their means of engagement while keeping equity in mind. Sixty-seven percent of officials stated their demographic transition and growth-related development, whether via annexation or neighborhood redevelopment, identified a need to change civic engagement practices. This has taken the forms of modifying existing engagement mechanisms and processes to become continuous (e.g., year-long) and developing internal engagement divisions solely dedicated to community engagement.

A common desire was identifying inventive ways to engage with the public, such as shifting to virtual engagement made available through digital and social media platforms. A silver lining to the COVID-19 pandemic was it kickstarted wanted change by forcing localities to develop alternative, virtual means of connecting, communicating, and informing their constituents. Due to the necessity of implementing social distancing practices, virtual meetings, virtual townhalls, virtual voting, and digital information packets were among the most commonly used methods to connect with communities during the pandemic.

Table 3. Key Informant Interview Quotes -Theme: Multidimensional Strain

Direct Quotes from Interviewees: Multidimensional Strain	
Population Growth	
Miami, Florida	<i>"It is rapid. I mean, we have a large population to begin with...but just in terms of the sheer number, I'd consider it rapid."</i>
Raleigh, North Carolina	<i>"The impacts of growth have become very clear for anyone paying attention. And where that manifests is lack of housing for folks, lack of affordable housing, constrained transportation system without good transit. I mean, those are all the hallmarks of a really good, well-thriving city. And we turned from what I like to call a sleepy little southern Sun Belt city into a pretty large, growing metropolis."</i>
Land Usage	
Miami, Florida	<i>"We have increased allowable densities and intensities in those areas, which are how we're really primarily addressing growth because we don't have the option of [annexation]. So that's really kind of the challenge."</i>
Raleigh, North Carolina	<i>"We saw this tsunami of population increase coming... we can't stop it. If we were to keep growing as usual, we are going to run out of land in twenty years."</i>
Housing	
Durham, North Carolina	<i>"Our growth is most affecting us in terms of housing stock, in that it's driven the price of housing stock way up, there's not enough housing stock, and there's not enough affordable housing stock. So, we're having a big housing problem."</i>
Raleigh, North Carolina	<i>"We're trying to change our development regulations to not only encourage but incentivize greater density on properties that would normally otherwise see low-density residential."</i>
Programming Efforts	
Tampa, Florida	<i>"Specifically looking for opportunities for additional higher-density housing along some of those commercial corridors because the older commercial just is no longer viable, and just the whole change in the retail sector has probably led to we need to rethink what a lot of this space is used for."</i>
Service Delivery	
San Antonio, Texas	<i>"The other issue, too, is community equity: the fact that there are so many people that may not necessarily have access to a city planning process for a number of reasons."</i>
Austin, Texas	<i>"We have had to change and do a better job with our engagement to get the populations that are not likely to participate in a study process or to participate in a planning process."</i>

Mitigation Strategies

Evaluation and Innovation

56% of the cities studied connected their Multidimensional Strain experienced to antiquated policies and practices. These included single-purpose and single-family residential zoning and focusing revitalization efforts or projects to certain areas of the city (e.g., downtown). Rapid population growth required cities to evaluate their policies and practices and innovate accordingly to mitigate the effects of Multidimensional Strain. Several cities noted having to

innovate their zoning ordinances to allow for greater densities and intensities. Doing so allows for development of multi-family and apartment housing and the creation of mixed-use zoning. The evaluation of land use policies needs to be coupled with the evaluation and innovation of related programming. Programming efforts shared by the officials included development incentives, taxation, and assistance (e.g., housing) programs. As cities examine ways to repurpose land, development incentives need to be considered to ensure proper attraction and support of desired development. With regard to housing, 33% of the cities are experiencing a housing crisis. The demand for housing and the shortage of housing stock has led to the inability to accommodate a rapidly-growing population and housing affordability concerns. Evaluating the adequacy of city-level housing assistance programs is necessary to ensure applicability and appropriateness given changes to the housing market and increased cost of living.

The evaluation and innovation of service delivery efforts, in the form of utility services and civic engagement, is a necessary strategy to mitigate the effects of Multidimensional Strain. The cities shared how disenfranchised communities are forced to the outskirts and how land usage strategies include annexation of available land. While the cost of living may be less farther from the city center, cities need to ensure they are adequately able to extend their services to these areas. Additionally, 67% of the cities experienced demographic transition; their population has become younger and more diverse. Taking into consideration changing demographics and physical expansion, either “up” with greater densities and intensities or “out” with annexation, cities need to evaluate their means of civic engagement. Innovating their engagement strategies to allow for increased access to informational events, voting, and in more languages and modalities (e.g., online) is necessary.

Collaboration

All of the cities surveyed noted having strong collaborative ties to either other city departments or external entities. Interviewees commonly highlighted how their city's strategic planning documents, especially those published more recently, emphasize collaboration as many issues and projects addressed by urban planning departments relating to growth are interdisciplinary and affect varying stakeholders. Common themes pertaining to Multidimensional Strain included land use, housing, transportation, programming, and service delivery; all of which involve numerous entities. While all cities noted having strong collaborations, some had more influential and targeted approaches. For example, 67% of cities noted having strong, collaborative relationships with water and transportation authorities, surrounding localities, and county governments. However, it is interesting to note only one city (Austin) explicitly noted collaborating with public health departments. When asked what collaborations are needed to mitigate Multidimensional Strain, respondents noted the need for greater, intentional collaboration with service-oriented non-profit organizations, institutions of higher education, private industry, and neighboring jurisdictions.

The myriad of city and department operations affected by Multidimensional Strain calls for collaborative resolve. Collaboration with service-oriented non-profit organizations can streamline and increase response efficiency. Partnering with institutions of higher education can facilitate the connection of research and practice and allow for the inclusion of students to better prepare the future workforce.

The relationship between urban planning departments and private industry has centered on development incentives and taxation. However, the need to adapt approaches to collaborate with industry was shared; emphasizing the need to better connect industry with the communities they

reside and work within. Several officials noted the spillover effects Multidimensional Strain had on neighboring jurisdictions. This secondhand strain placed a burden on surrounding communities to pursue growth mitigation strategies of their own. Therefore, there is a need to develop collaborative, cross-jurisdictional initiatives to address Multidimensional Strain including neighbors in the decision-making process.

Equity Considerations

Of the cities studied, all urban planning departments noted communities of color, low-income individuals, and homeless persons to be of the most vulnerable. While all urban planning departments did not see their city's rapid population growth contributing to the emergence of new vulnerable populations, some tied their growth to exacerbating existing issues experienced by current vulnerable populations. The city officials surveyed did not explicitly share information on programs assisting vulnerable communities, but focused on efforts to enhance access and equity of civic engagement.

As previously noted, housing availability and affordability concerns were commonplace. The city of Austin noted their housing shortage coupled with their increasing cost of living pushed vulnerable populations out of downtown and into surrounding neighborhoods. This led to vulnerable communities moving to areas where services and amenities were less likely to be provided and costlier. Additionally, 33% of the cities noted their population growth as a contributing factor for gentrification leading to greater levels of displacement. These effects call for equity considerations throughout the Mitigation Strategies. Keeping in mind how those most vulnerable are affected by initiatives resulting from the evaluation and innovation of land use and development practices, programming, and service delivery is important. Additionally,

collaborating with and involving vulnerable communities in the decision-making process is critical to ensure their input is collected and considered.

Table 4. Key Informant Interview Quotes -Theme: Mitigation Strategies

Direct Quotes from Interviewees: Mitigation Strategies	
Collaboration	
San Antonio, Texas	<i>“We’ve been very cognizant of the need to continually align and have those discussions about, you know, if we project growth in a certain area, are they prepared to service it?”</i>
Equity Considerations	
Austin, Texas	<i>“I’d say the changes we see are definitely folks getting pushed further out, with the rising cost of homes and housing. We definitely have data on what’s called the suburbanization of poverty...they’re further away from the retail and commercial things they need—grocery stores, health care centers—and they’re also forced further away from parks [and] green spaces.”</i>
Orlando, Florida	<i>“Those populations are very vulnerable to being kicked out of their homes, one paycheck away from moving back home with their parents, people doubling up—so housing affordability is a huge issue within this region and within the city in particular. We’re very cognizant about that. And of course, add in the transportation costs, because you have to consider both housing and transportation costs together. So that makes a large chunk of the population here in Orlando very vulnerable.”</i>

Discussion

It is important to note the COVID-19 pandemic limited the ability of public health department officials to participate in this study. While the study was designed to capture qualitative data from representatives of both departments, only urban planning officials were available to participate. Common experiences of rapidly growing, “hot cities” shared by these nine urban planning departments describe Multidimensional Strain and Mitigation Strategies for rapid population growth. While several experienced their population growth in a condensed timeframe, others have been growing rapidly for decades.

Regardless of how long a city has experienced rapid growth, experiences and repercussions are similar. Multidimensional Strain caused by rapid growth has contributed to gentrification and the limit of available land forcing cities to rethink land-use and zoning strategies. Over half of the officials interviewed noted rapid population growth contributed to limited housing stock, increased housing costs, and a volatile housing market with 33% describing a “housing crisis”.

Transportation is an important linkage to the health and well-being of residents. It connects people to housing, work, food, healthcare and more. As populations grow, transportation users and service needs increase. Likewise, as cities physically expand and extend their borders, transportation service extension is needed.

Hot cities identified similar Mitigation Strategies in response to rapid population growth. These include the evaluation and innovation of growth management strategies, collaboration, and equity considerations. Throughout the evaluation of growth management strategies, it is important to recognize the relationship between the categories of Multidimensional Strain.

Participating cities looked at connections with current land use policies and the housing market and how this impacted transportation and service expansion. Participating cities noted the importance of evaluation-led innovation as means to drive a city to become more efficient and adopt new practices. This recognition demonstrates how innovative growth management is required to address Multidimensional Strain affecting the public health and urban planning infrastructure. As the literature describes, this can manifest in the exacerbation of existing public health issues, strains on housing and health systems, and fragmented civic engagement^{7,9}.

With regard to zoning, cities experiencing rapid growth had to innovate policies and procedures to allow for higher densities, intensities, and mixed-use areas. Doing so while instilling proper incentives along the way can direct growth and development to accommodate a rapidly growing population and benefit residents. Similarly, access to affordable transportation is important.

Officials from the cities studied commonly note transportation as an issue and reference the need to innovate, redevelop, or expand services.

Vulnerable populations are of importance to both urban planning and public health professionals. Urban planning and public health departments across the country produce programs and other

means of assisting populations in need. However, rapid population growth can exacerbate already existing issues affecting vulnerable populations. As a result, the urban planning officials described plans to develop incentives for affordable housing units and attracting employers to combat housing deficits, a lack of affordable housing units, displacement, and expand current services.

As a city gains new constituents, maintaining awareness of their priorities and concerns is important. The Klick (2015) study emphasized this by highlighting how Lake County, Colorado, leadership's lack of assessment and engagement with their rapidly growing Latino population lead to a worsening of community health issues and political isolation. The city officials included in our study rated themselves either at or above average regarding awareness of constituent priorities and concerns. Yet, the commonly experienced impact on service delivery, a Multidimensional Strain category identified by the interview data, pertained to civic engagement. City officials discussed the need to innovate civic engagement mechanisms to expand reach and include an increasingly diversifying constituency in the decision-making process. Interestingly enough, the COVID-19 pandemic forced cities to innovate the way they involve and interact with the public. Several officials noted how they knew their means of civic engagement were antiquated and how they wanted to move digital, but never did. The pandemic forced cities to innovate engagement mechanisms resulting in the implementation of virtual means.

Multidimensional Strain can have a spill-over effect impacting other offices, organizations, and jurisdictions. As such, this study identified enhanced collaboration as a Mitigation Strategy.

Urban planning officials rated themselves at or above average with regard to collaboration in the pre-interview survey which was supported by the interviews. Their experiences emphasize how urban planning impacts and encompasses entities both internal and external to the city. Feedback

from the officials revealed intentionally collaborating with service-oriented non-profit organizations and neighboring jurisdictions are important to Multidimensional Strain mitigation. Enhanced collaboration was discussed within decision-making practices for city and public administrations. The top-five influential factors of participating city officials on decision-making processes were local level-factors including city or county leadership; local agenda setting; city or county budget; level of autonomy; and relationship with other cities/counties within the state. These results highlight low influence from relationships with state and federal leadership. However, enhanced collaboration with state and federal government may provide needed resources to mitigate Multidimensional Strain and guide development. Further study of the decision-making factors ranked by cities in the pre-interview survey is recommended as this may provide deeper context on the “why” and “how” cities responded to their growth. The final category of Mitigation Strategies is equity considerations. Equity is crucial to reducing Multidimensional Strain and was woven throughout the experiences shared by the city officials. Participating cities describe common equity issues with rapid population growth including shortages of affordable housing, community investment, transportation development, service delivery, and limited civic engagement. These considerations should be at the forefront of planning for all public administrators.

Limitations

The COVID-19 pandemic impacted cities, communities, and lives across the world. The pandemic had spillover effects on this study resulting in the inability of public health departments to participate. Although public health departments from the nine selected cities were contacted and followed-up with several times, all replied stating their inability to participate was due to their pandemic response. As such, a limitation of this study is that it only reflects the

experiences of urban planning departments though the intent was to include public health perspectives. The experiences and reactions of public health departments in response to their city's rapid population growth is still of interest and may result in a continuation of this study post-pandemic. An additional limitation of this study is that it only reflects the thoughts, experiences, and responses of selected officials in nine cities across the U.S. and may not accurately reflect the experiences of cities not included in the study. However, the feedback and experiences highlighted can prove helpful to other comparable cities as they experience or plan for their growth management strategies.

Declarations

Ethics Approval and Consent to Participate

The study received IRB approval from the Committee for the Protection of Human Subjects at The University of Texas Health Science Center at Houston (UTHealth) (HSC-SPH-20-0167). Consent to participate was physically captured in the pre-interview questionnaire and verbally during the key-informant interview process.

Consent for Publication

All authors have consented to this article's publication.

Availability of Data and Materials

Datasets generated during and/or analyzed during this study are not publicly available due to personal identifying information but are available from the corresponding author on reasonable request.

Competing Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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Authors' Contributions

All authors contributed to the design of the work. RH wrote the main manuscript, collected and analyzed the data, and interpreted the results. All authors revised the manuscript and approved the final version.

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