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A FRAMEWORK FOR REDUCING PLACE-BASED INEQUITY

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About the Authors

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About Data-Smart City Solutions

Data-Smart City Solutions is working to catalyze adoption of data projects on the local government level by serving as a central resource for cities interested in this emerging field. We highlight best practices, top innovators, and promising case studies while also connecting leading industry, academic, and government officials. Our research focus is the intersection of government and data, ranging from open data and predictive analytics to civic engagement technology. We seek to promote the combination of integrated, cross-agency data with community data to better discover and preemptively address civic problems. Our website, datasmart.hks.harvard.edu, and our broader work are housed at the Bloomberg Center for Cities at Harvard University.

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In the spring of 2023, the Data-Smart City Solutions team at the Harvard Kennedy School (HKS) hosted 30 large-city chiefs of staff at the school, and asked whether their cities' chief equity officers would be interested in joining a community of practice. In just the first week, more than half of the chiefs of staff answered affirmatively, enthusiastic about the chance to share the community of practice value with their colleagues.

Their overwhelming positive response illustrates how much has changed. Five years ago, the position of chief equity officer barely existed. Yet, at the same time, not enough has changed. As cities wrestle with the implications of race and equity and as chief equity officers move to establish themselves inside city and governmental structures, the focus must now turn to the hard work of effecting meaningful change.

Residents and city officials often mean different things when discussing equity. Some individuals equate 'equity' with public action. For some, equity relates to fairness in opportunities. The language of White House Executive Order 13985 touches on both: "Equity means consistent and systematic opportunities, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment."[i] For still others, equity relates to outcomes, or it may define the more fundamental question of how we can produce a more just society. In this framework, we think of equity as multi-dimensional, the product of all the forementioned meanings.

Defined as such, in our dealings with public officials we have witnessed an almost desperate search to find ways to combat the inequities that thwart opportunity, despite the evidence to suggest that effective strategies already exist. Indeed, based on our research and our work with local leaders, we believe that applying a geographic or place-based lens to issues related to equity offers significant potential. In this paper, we focus on geography as a key mechanism for turning concern into action.

We frame the approach around geography for several reasons. First and foremost, in the United States, race and place are inextricably linked. Our cities' neighborhoods are divided by economic status which all too often aligns with race. As summarized in a 2020 National Bureau of Economic Research (NBER) paper, "Racially restrictive covenants in deeds, steering by real estate agents, slum clearance and the construction of large public housing projects, the routing of interstate highways, discrimination in mortgage lending, the location of segregated schools, unequal labor market opportunities, threats of outright violence directed at black families, and lack of protection of property and civil rights have all profoundly affected where African Americans lived and the degree to which they could accumulate housing wealth."[ii]

NBER researchers studied the Home Owners Loan Corporation and Federal Housing Agency maps, stretching back to the 1930's and concluded that Black people "were forced to live in the lowest quality neighborhoods before the maps were [even] created."[iii] Since policies like zoning codes and unequal delivery of services continue to dominate local and state actions, interventions aimed at closing wealth, health, and education gaps must have a strong geographic component.

Second, as advocated in Collaborative Cities-Mapping Solutions to Wicked Problems,[iv] place – and by extension maps that layer data from multiple sources onto geographic areas – provide a platform for understanding. The compounding effect of discriminatory policies on places and the people that live in them produces the greatest harm. Layered spatial data can bring to light the aggregate and discrete impact of factors as varied as environmental conditions, safety, green space, access to health care, healthy food, and transportation. Data visualization allows users to process substantially more information than charts and tables alone and, as such, helps guide action in an immediate way.

The final reason we propose using a spatial lens to mitigate decades of discriminatory policies is structural. Most local governmental activities, although organized by agency, are delivered in a place. Spatial visualization helps facilitate cooperation across agencies and organizations, which complex problems demand and which have historically proven difficult to affect. By looking at equity through a place-based lens, local officials better understand the implications of connected actions and they have a basis for engaging the community.

As presented in the online resource for Collaborative Cities, "given the way that discrimination is rooted in America's landscape, policies and interventions aimed at closing wealth, health, and education gaps have a strong geographic component."[v] In this paper, we present seven pillars of a framework that can guide fairness in operations and equity in policymaking.

Pillar 1: Select Criteria to Identify and Assess Locational Equity

Resources for Collaborative Cities

Local efforts to address equity should begin with a spatial test. Policies, programs, and outcomes should be measured for their place-based implications. This process should begin with the identification of underserved communities which in turn requires the application of a relevant set of metrics, which may vary depending on the purpose of the test. The widely used American Community Survey (ACS) is an annual Census survey that provides information about community characteristics.[vi] It asks a broad range of questions about the activities, characteristics, and needs of the people living within a household and is a key source of data on populations and housing.[vii] It is used in the distribution of billions of federal and state funds.

The Biden Administration has drawn attention to additional equity classification metrics including Justice40 and the Climate and Economic Justice Screening Tool. The former guides funds and the latter is a mapping tool to "identify disadvantaged communities that are marginalized and overburdened by pollution and underinvestment.[viii] These federal tests are helpful but have limitations. Justice40 geographies are too large for many of the

local decision-making purposes described here, and the Climate Screening Tool qualifies communities that meet any single one of the criteria and therefore is less helpful in determining severity based on the presence of multiple factors.

To assist local leaders with more useful standards to drive program and operational actions, The Government Alliance on Race and Equity (GARE) worked with a cohort of cities and counties to develop the Social Equity Analysis ArcGIS solution that provides additional capacity and flexibility in how to make and evaluate governmental decisions. San Antonio, one of the GARE member communities which participated in the cohort, produced the Equity Atlas,[ix] a leading example of how by disaggregating data, cities can better understand differences in services and experiences by neighborhood.[x]

#DataReads: On Equity

Spatially layered data sets are necessary but not sufficient for identifying and assessing the equity status of under-served communities. Tests and subsequent planning efforts must also include the community as an active participant in the process. Even the best-intentioned use of data cannot capture the full dimension or context of inequity in a long-neglected area if not informed by the voice of the community. Complicating the effort is the reality that many communities of color, because of the historic abuse or neglect, "mistrust institutional data collection".[xi] An article from Data-Smart City Solutions observes that, "before starting any collection, researchers must understand power differentials among themselves and the broader communities, and how they can begin to level the playing field and reckon with unintended bias in their work." [xii] The Chicago Beyond Equitable research guidebook Why Am I Always Being Researched?[xiii] Suggests testing data against community experiences. Identifying neighborhood leaders who can convene residents around the issues invariably results in additional discoveries and insights.

A story told by Amen Ra Mashariki, senior advisor to the Bezos Earth Fund and former chief data officer (CDO) for New York City, highlights the importance of community context in spatial mapping. As CDO, Mashariki saw a report of rat infestation numbers and noted that the public housing community where he grew up now appeared to be rat free. Curious, as this didn't track with his experience in childhood, he stopped in to ask the super about these surprising results. The super responded that of course they had rats, it was just that since nothing happened in response to their calls, residents gave up reporting to 311.

A spatial approach to understanding community conditions is necessarily an iterative process. Problems identified by the data should be presented to community representatives who in turn are likely to suggest new perspectives which surface the need for new data. One way for city officials to gather local insights on equitable service delivery is to transparently share with community organizations information about 311 complaints, responses, and benchmarks of satisfaction. Chicago is a leader in providing spatially organized data to its community-based organizations (CBOs). The city launched ChiRecoveryPlan.com[xiv] which helps residents, and their neighborhood leaders, access the data that will help them

understand whether their community is being treated fairly. It also helps underserved areas more effectively engage on what is needed and its configuration. According to Chicago Chief Technology Officer Nick Lucius, "This website is the result of a tremendous amount of painstaking, resident-focused research and development. It is a model for resident exploration of community investments that is flexible enough to accommodate a variety of city programs and services."[xv]

Pillar 2: Benchmark, Then Prioritize Programs/Policies/Investments

Equity in Urban Improvements: Oakland's Great Pave

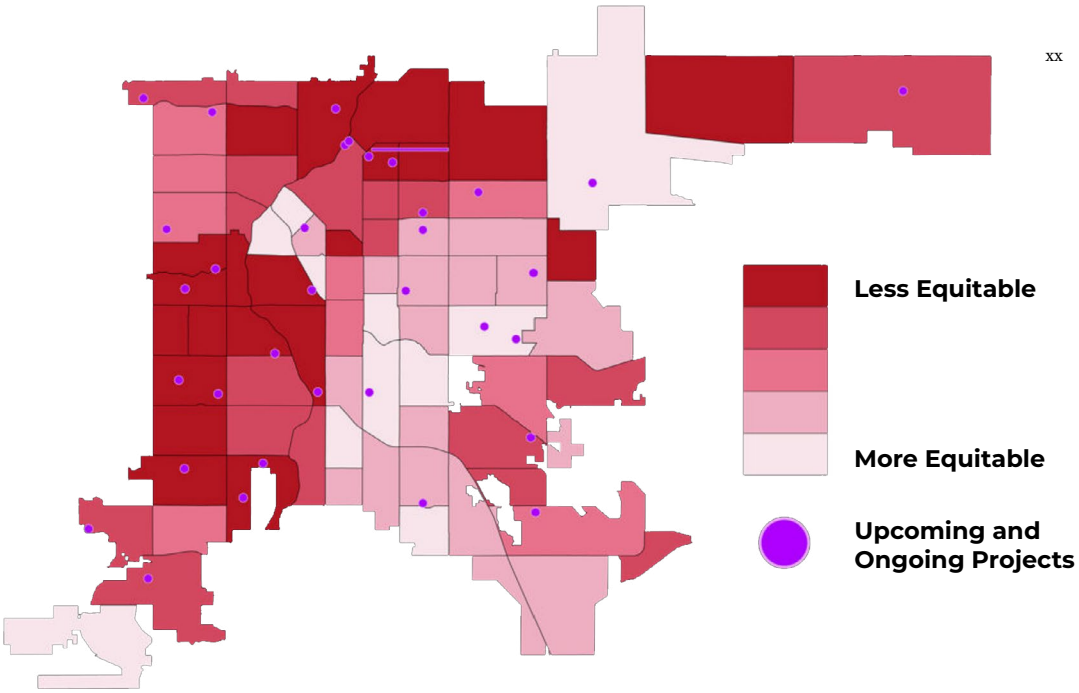
Choosing the right test and locating areas that have suffered underinvestment and other discriminatory actions is just the first step in changing how local government produces the necessary remedies. Applying a place-based equity lens to prioritize subsequent public action is also necessary. In many circumstances using benchmarking as part of the prioritization process is relatively straight forward and simply requires policies mandating its application. Oakland, California through its Department of Race and Equity, provides an example of how to utilize a test in decisions associated with its core business.

The city's Department of Transportation (OakDOT) examines disparities in transportation, infrastructure, and mobility faced by communities of color. In 2019, voters approved a $100 million bond for a 3-year citywide paving program.[xvi] Road conditions played their usual part in allocation decisions. Officials examined streets to determine how well-traveled each was, who lived along these streets, and what kind of facilities (e.g., schools and doctor's offices) were close by. This time however, officials also applied a spatial equity lens to their allocation decisions. They layered community data over the road conditions data which, when visualized, revealed large discrepancies in street and paving conditions as well as long commute times and unprotected bike lanes between neighborhoods of color and majority-white neighborhoods.[xvii]

Using the mapped data visualizations, officials engaged historically excluded populations through listening sessions, design workshops, and digital engagement tools. Geographic information systems (GIS) data provided the narrative and the foundation for the community meetings, involving more than 3,600 people in person and 2,300 online. OakDOT utilized a percentage formula to "distribute funding for local streets by the share of underserved populations and share of local street miles in poor condition," which ended up prioritizing neglected areas and communities of color.[xviii]

OakDOT'S approach of mapping equity into service delivery as a policy should be applied broadly to city decision making. Denver, Colorado, for example, is an early leader

in utilizing equity in the distribution of municipal services by utilizing a similar approach to park improvements. Its index compares park access against statistics on morbidity, poverty, education, access to food, and more. The city's planning document, The Game Plan,[xix] commits to ensuring equity in the distribution of park resources so that all residents have the opportunity to improve their personal health and well-being. Among other park equity goals is the 10-minute park, meaning that all residents should live within a ten-minute walk of a park or greenway.



[xx]

When the drivers of inequity are numerous, testing and benchmarking is complex and must be ongoing. This typically leads to additional discoveries and actions which we address in the following section.

Pillar 3: Plan for Complexity

When officials look to improve outcomes in places affected by a variety of historical, and continuing, unfair decisions the choice of strategies is often complex and so therefore is the data discovery and mapping process. No area better exemplifies this challenge than public health.

Health status is foundational to both individual development and, as an aggregate, the development of communities. Through their research, economists Partha Dasgupta and Debraj Ray illustrated the relationship between health status and capacity to be productive.[xxi]

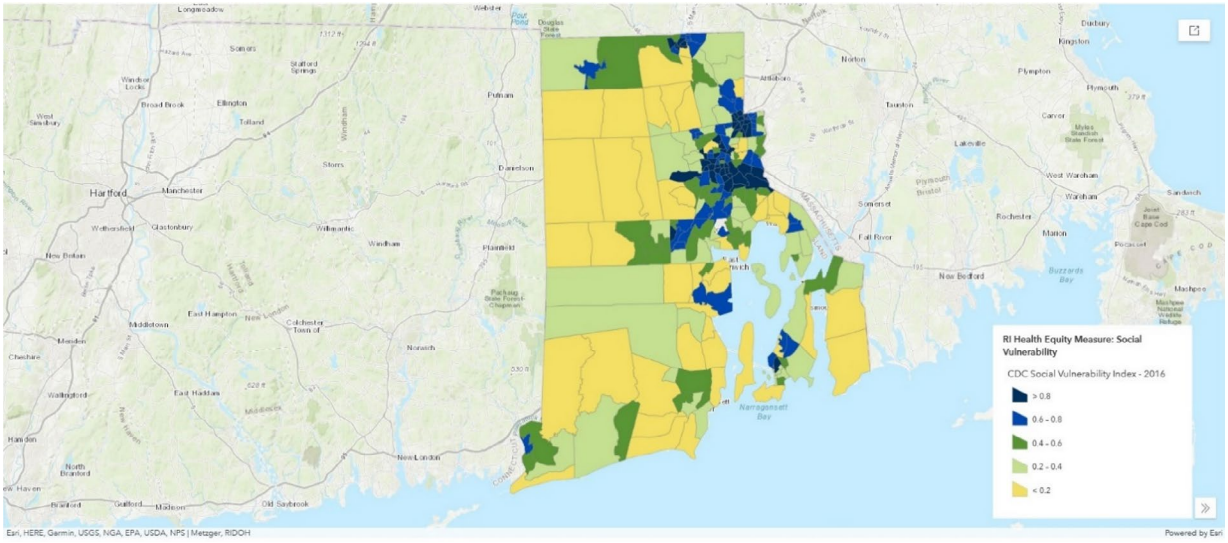
UnitedHealthcare's Investments in Affordable Housing to Help People Achieve Better Health Surpass $400 Million

David Williams, a professor at Harvard's T.H. Chan School of Public Health,[xxii] has strengthened our understanding of the complex interactions between race, socioeconomic status, stress, the environment, and health behaviors, and their impact on both physical and mental health. While this makes intuitive sense, access to and delivery of healthcare and environmental justice continue to be a challenge in many communities across the United States, with minority populations most disadvantaged.

The several factors which affect ill health are all intertwined, including systemic issues like access to education, financial planning products and housing, as well as environmental factors like water and air pollution. In 2019, insurance giant United Health ran a study in which housing was offered to formerly homeless recipients of Medicaid to observe the effects on individual health expenditure. They found that by simply providing housing, average monthly healthcare costs could be reduced by as much as 80 percent.[xxiii] Place-based equity can influence population-level health outcomes and environmental justice because the approach seeks to address the compounding factors that affect communities most at risk. Understanding these interwoven complexities is crucial to finding adequate resolutions. Spatial mapping of these issues could reveal which geographic areas are most impacted and therefore, where resource deployment should be prioritized. Unsurprisingly, most impacted locations are significantly populated by racial minority groups.

The state of Rhode Island exemplifies how mapping tools provided policymakers with key insights into which areas in their state should be prioritized. The Rhode Island Department of Health and the Community Health Assessment Group collaborated to develop the Rhode Island Health Equity Measures, a set of 15 determinants of health (variables from the US Census data) across five domains that affect health equity, including integrated healthcare, community resiliency, physical environment, socioeconomics, and community trauma.[xxiv] Each of these are then mapped to measure "the resilience of the communities when confronted by external stresses on human health" to determine which communities are more socially vulnerable.

[xxv]



Mapping individual indicators on their own will usually not be sufficient for providing the level of insight needed to inform resource allocation decisions. Layering those data categories and indicators, however, reveals the intensity of their compounding effects geographically, which may serve as a better indicator for intervention targets. Similarly, the Environmental Justice Screening and Mapping Tool[xxvi] enables layering of indicators across several domains to display the areas most intensely impacted. For example, mapping health disparities data like life expectancy, heart disease, and asthma, then layering data from hazardous waste proximity and flood risk, highlights which areas in Philadelphia need the most urgent attention, as displayed in the image below.

On the map of Philadelphia, the selected layers display health disparities: low Life expectancy, heart disease, and asthma; pollution and sources: hazardous waste proximity; and climate change: flood risk. The combination of these indicators and their corresponding intensities displayed on the image highlights which communities are most at risk. These can then be mapped over or compared against different demographic data, such as income level and race, for a fuller picture.

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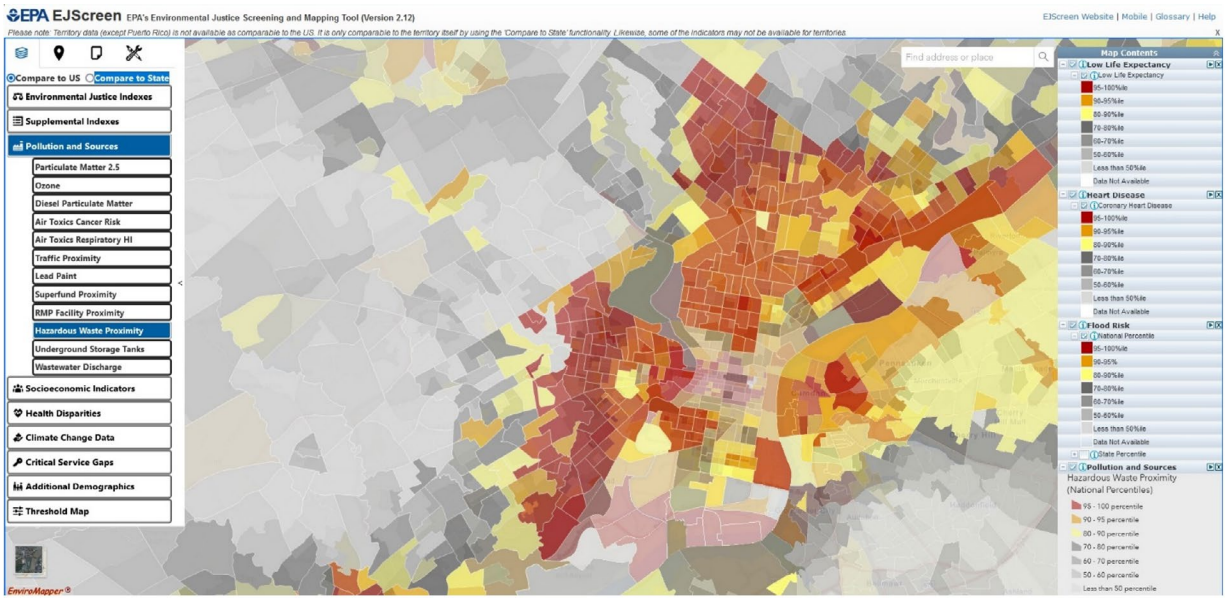


Other cities are using similar technologies and tactics to understand the effects from other environmental factors and how they affect communities; for example, Atlanta launched UrbanHeatATL as a cross-disciplinary effort to map extreme heat in underserved communities. And New York City's tracking of PM2.5 and emissions from traffic tell a damning story; the parts of the city with the highest rates of pollution coincide with the communities most heavily populated with people living below the federal poverty level.[xxviii] Additionally, traffic pollution in the area contributes to 320 premature deaths and 870 emergency department (ED) visits and hospitalizations each year.[xxix]

These effects could push residents in heavily impacted communities into what development economists refer to as the poverty trap – a vicious, persistent, and self-reinforcing mechanism that entraps people or communities in poverty.[xxx] These traps result from a confluence of factors through which the effects of each set of challenges build upon each other.

As multiple factors determine health outcomes, a place-based equity approach could help mitigate challenges to health security as it addresses access to resources and opportunities across a range of domains, which are typically within the geographic areas most often inhabited by those living in poverty.

Pillar 4: Rigorously Evaluate Access

Easier Access to Benefits in East Multnomah

Place-based equity requires government officials to consistently monitor and address access to public services and vital goods. Here we discuss physical, informational, and digital access.

With respect to physical access, testing should shine a light on the built environment and include greenways, parks, and sidewalks. It should also include access to critical necessities such as healthy food and transportation. The San Francisco Municipal Transportation Agency (SFMTA) committed to helping individuals in underserved communities more easily commute to jobs. SFMTA identified what it calls equity neighborhoods and maps commute sheds (areas where employees can commute to work locations within 30 minutes) to determine how many jobs are accessible from each neighborhood, assuming 30-, 45- and 60-minute commute times.[xxxi] These data are used to monitor the efficacy of public transportation routing decisions and to plan future decisions.

Access to less tangible benefits starts similarly but involves more than simply plotting services on a map. It must also examine why unfair conditions exist. This often reveals relatively obvious solutions. When San José officials analyzed the city's scholarship program, which assists low-income families with the cost of after-school and summer programs, they discovered disparities in take-up rates. Their examination revealed variances even among residents of similar income levels. Officials found that 96 percent of students that received a scholarship lived within a mile and a half of the recreation center where they had enrolled in the program.[xxxii] Why? Because to enroll, individuals first had to hear about the program and then sign up at the nearest participating community center. Low-income families at a greater distance from the centers received scholarships at lower rates because program advertising was limited to physical recreation spaces. The city rectified the problem by distributing more than 1,000 multi-lingual flyers door to door. This San José example demonstrates the importance of constantly interrogating program attributes and applying additional criteria.

An examination of benefit programs where utilization is well-below expected levels can lead to a digital solution instead of a physical one. In these cases, the discovery process is

place-based but the resolution is person-based. In East Multnomah County, Oregon, officials examined various federal and state benefit programs, looking at whether a person who was currently enrolled in one program was also eligible for others that they weren't enrolled in. Based on their analysis, county officials launched a digital Common Services Application to facilitate a streamlined, online, single-application process, called the Multnomah One Application.[xxxiii] East Multnomah officials solved an access problem for a community with a digital solution.

Pillar 5: Use Location to Give Presence and Basic Rights to the Underserved


Using Data to Combat Disenfranchisement

Pillars 1-4 focus largely on the use of spatial analytics to address systemic inequity. And while policy, access, and service changes ultimately impact individuals, there is a very human element we must also address. Local and non-profit leaders should also apply spatial analytics to identify those places where too many individuals lack voice. And a significant way to increase voice, and therefore enhance advocacy for fairness, is to address census undercounting or voting registration patterns. GIS systems can identify areas with disproportionate numbers of people lacking the basic rights of residency and/or citizenship. For example, the Anchor Collaborative, a diverse group of national organizations including the NAACP and UnidosUS, utilized maps to target areas of the US where young children, people of color, and immigrants were undercounted. In 2018, the Anchor Collaborative built a cloud-based data hub for the upcoming census and made their back-end databases and GIS training available to local organizations.[xxxiv]

According to Jamal Watkins, Senior Vice President of Strategy and Advancement for the NAACP, "There's a science to telling the story of folks who have not traditionally responded to the census. Where do they live and how can we decide how to target those communities? Geospatial mapping simplified the different jurisdictional rules into an easy-to-understand visual guide that helped volunteers keep track of hyper-local regulations and statistics."[xxxv] Beyond examining and revitalizing city services, place-based equity demands focused efforts to give voice and representation to the unrecognized.

Pillar 6: Make Policy and Investment Decisions That Support Community Assets


How Maps can Help the Fight for Racial Equity

Truly dismantling the most severe consequences of place-based inequity requires a comprehensive approach to community revitalization which includes the items mentioned above, but must also take into consideration the capacity building implications of public decisions. Investments in the built environment should intentionally be made in places, and in a way, that supports civic infrastructure.

Harvard economist Raj Chetty compared the Los Angeles communities of Watts and Compton and found that 44 percent of the Black men who grew up in Watts were incarcerated on April 1, 2010, compared with only 6.2 percent of Black men who grew up in families with similar incomes in the neighboring Compton. While other important factors, such as social mobility, were also much lower in Watts than in Compton,[xxxvi] chief among the differences noted by researchers between the two locations was the strength of the civic infrastructure in Compton relative to Watts.

This raises the sometimes-overlooked issue of the role of public officials in supporting the civic health of the community. We believe they must think holistically about their role. Rather than looking at the distribution of roads, sidewalks, libraries, or other services separately, city capital planners should explicitly consider linked investments that build social capital and more livable neighborhoods. Such a comprehensive plan to overcome decades of inequitable treatment and community suffering should include investments in structures that build civic capacity and community interaction and exchanges. The American Planning Association provides a menu of design elements conducive with the development of social capital. Some of them include the following:

- Places that provide opportunity for networking and participation
- Traffic management and urban design to create safe places for children to play.
- Encourage mingling through place-making.
- School and classroom size
- Open spaces, (pocket) parks and yards
- Street condition
- The reduction of one-way streets and traffic speed
- Grass, trees, flowers, convenient places for outside sitting
- “Eyes on the streets” buildings with street level windows
- Home ownership
- Absence of vacant homes
- Shorter commute times or the opportunity to walk or bike to work.
- Mixed use infrastructure[xxxvii]

Communities of color have been systematically denied resources, which has had a cascading effect on poverty, employment, and health. A comprehensive place-based strategy focused on equity would evaluate and compare these Planning Association design factors across all city neighborhoods and then drive investments accordingly.

The Charlotte Housing and Neighborhood Services' division (HNS) provides an example of using a multi-factor comprehensive approach to investment decisions, including proximity to amenities, car and public transit, access to jobs, and neighborhood diversity in its planning. The proximity measure includes parks and green spaces as amenities.

Yet simply mapping deficits alone ignores the powerful positive forces within the community. Cities should also map the many assets that exist in underserved communities. Faith based organizations, small businesses, non-profits, and local leaders play critical roles in their neighborhoods. City hall should map these assets and then involve them in decision making, investment decisions, and the delivery of public services. Years ago, when Stephen Goldsmith was mayor of Indianapolis, the Front Porch Alliance received a considerable amount of local support and national publicity for its effort to map and then work with the community assets in terms of childcare, after school, small park utilization, advocacy, and more.

Pillar 7. Use Layered Data as Narrative

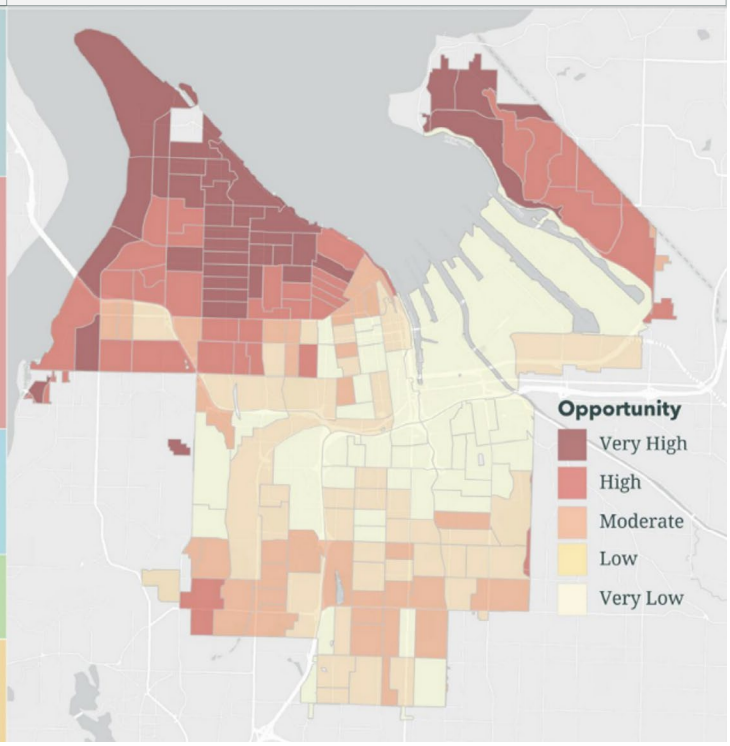
Any effort as complicated as addressing equity in city neighborhoods needs the backing of the community affected as well as the general public. It also requires cross-sector collaboration. Both of which demand a leader who uses narrative to build support. Visualized data that tells the story of place, and the history and effect of discriminatory decisions, aids greatly in the development of that narrative.

Equity as Practice, Not Product

The city of Tacoma, Washington is a leader in the use of GIS to tell the place-based equity story to generate support for corresponding action. Tacoma's maps analyze community conditions, city actions, and progress measured over time to paint a picture of uneven opportunity. Layering on community characteristics helps guide service delivery and resource allocation.

The maps help Tacoma with tactical decisions, budget proposals, and resource distribution. For example, the city received only half of the smart meters it needed for all households. Public works and utility teams identified low- and very low- income neighborhoods for the initial placements. Residents in these neighborhoods had the greatest need to manage personal energy consumption, lower demand during peak times, and qualify quickly for alternate billing. Explaining its rationale for the initial placements helped the city justify its scare resource allocation decision.

xxxviii

Dataset	Category	Equity Index Map
Parks & Open Space	Accessibility	
Healthy Food Availability		
Transit Access Score		
Voter Participation Rate		
Four Year Average Voter Participation Rate		
Households with Internet		
Average Pavement Condition		
Household Vehicle Access		
Tacoma Nuisance Index	Livability	
Tacoma Crime Risk		
Urban Tree Canopy		
Average Life Expectancy		
Cost-Burdened Households		
Owner Cost Burden		
Renter Cost Burden		
Pedestrian and Bike Trails		
Bike and Pedestrian Facilities		
Pedestrian/Bicycle Crashes		
Percentage without Healthcare		
Median Home Value		
Percent of 25+ Year Old's with Bachelor's Degree or More	Education	
Bachelors Degree or More Rate		
Average Testing Proficiency		
Average Student Mobility		
High School Graduation Rate		
Kindergarten Readiness Rate		
Jobs Index	Economy	
Median Household Income		
200% of the Poverty Line or Less		
Unemployment Rate		
NOx – Diesel Emissions	Environmental Health	
Ozone Concentration		
PM2.5 Concentration		
Populations Near Heavy Traffic Roadways		
Urban Heat Island Effect		

The maps help Tacoma with tactical decisions, budget proposals and resource distribution. For example, the city received only half of the smart meters it needed for all households. Public works and utility teams identified low- and very low- income neighborhoods for the initial placements. Residents in these neighborhoods had the greatest need to manage personal energy consumption, lower demand during peak times and qualify quickly for alternate billing.[xxxix] Explaining its rationale for the initial placements helped the city justify its scare resource allocation decision.

Conclusion

We present this framework as a way of encouraging cities across the country to take more robust action to correct what has been, and continues to be, a historically unfair system. Setting up offices and mapping place-based inequity are important first steps, but that is all they are. Khahlil Louisy is an expert in public health, whereas Goldsmith is a curator who specializes in governance and who, along with Khahlil, has heard from some of the country's leading chief equity officers, non-profit leaders, mayors, and experts. But we are also advocates and have organized the stories of those who work daily to correct injustice in a framework that we believe can produce greater corrective action and in turn a fairer, and higher quality of life for persons living in places that have experienced segregation and neglect for too long. This worthy imperative deserves and requires community-wide support-support that will come if more people understand the injustice and the opportunity to correct it.

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