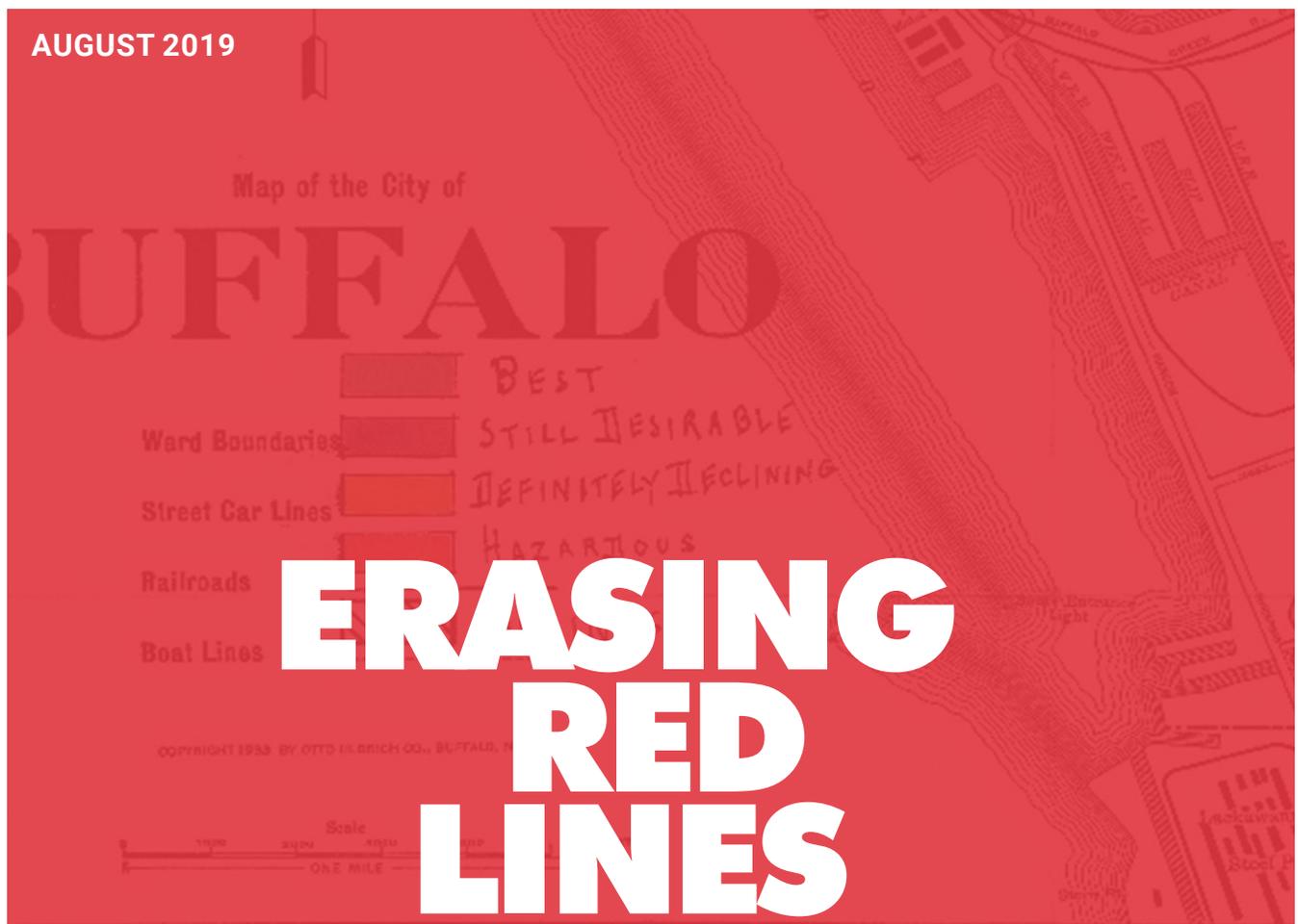


AUGUST 2019



# ERASING RED LINES

## PART 1 - GEOGRAPHIES OF DISCRIMINATION

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## INTRODUCTION

Since at least the 1930s, the City of Buffalo, New York has been spatially and socially divided. While certain mixed use and residential communities across the map have shown remarkable resilience—and thrived—during the City’s history of deindustrialization and population loss, many communities of color on Buffalo’s East and West Sides have experienced persistent and increasing levels of distress. This series of brief reports examines those patterns and engages with strategies for reinvesting in chronically distressed communities.

Cities are complex, dynamic, and collective places that are made up of innumerable interacting parts.<sup>1</sup> When a particular change affects one (set) of these parts at a given point in space and time, the inter-connectivity of that part (set) with the rest of the urban system can bring about a cascade of effects that is many orders of magnitude greater than the initial change.<sup>2</sup> This observation follows from Nobel prize-winning economist Gunnar Myrdal’s concept of cumulative causation.<sup>3</sup> Cumulative causation is used to explain both “virtuous” and “viscous” cycles that seem to occur in some places.<sup>4</sup> Generally speaking, it means that once a qualitative or quantitative change originates in a given area, inter-connections between the changed variable(s) and other local variables give rise to self-reinforcing feedback processes.

Prior to World War II, at the level of a whole city, these feedback processes almost unanimously pointed to a virtuous cycle of urbanization. Simply put, cities grew. The world over, prewar industrialized cities appeared to enjoy steady, positive inflows of people, jobs, aggregate income, and built structures.<sup>5</sup> Indeed, the field of urban planning emerged largely from the need to control and manage these widespread, seemingly unabating patterns of city growth.<sup>6</sup> While urban growth did not cease after World War II—in fact, the urban share of global population has increased in every decade since 1940<sup>7</sup>—by 1950 the phenomenon became far narrower in its geographical scope. That is, whereas prewar urbanization was mostly distributive, in that it applied to virtually all cities; postwar urbanization has been comparatively parasitic, fueling growth in some places while contributing to stagnation, shrinkage, and/or decline in others.<sup>8</sup>

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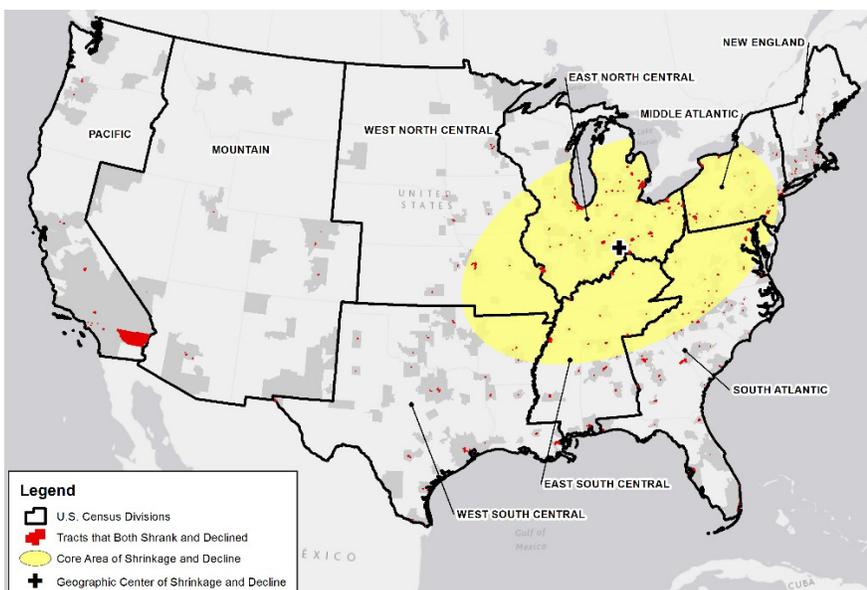
This contemporary era of parasitic urbanization has placed countless communities across the world into vicious cycles of harmful, self-reinforcing demographic, economic, and physical change. In the United States, the landscapes most associated with these coupled patterns of shrinkage (i.e., severe, persistent, and prevalent population loss) and decline (i.e., negative qualitative change) are arguably the Rust Belt and Appalachia. Indeed, recent research has found that the “core area” of contemporaneous shrinkage and decline since at least 1970 includes the Great Lakes region, portions of the Midwest, and the steel- and coal-producing areas in and around the Appalachian highlands, from roughly northern Mississippi and Alabama through Western and Central New York State.<sup>9</sup> While it is certainly not the case that all places within that “core area” have endured shrinkage and/or decline since the mid-20th Century, the coupling of these two phenomena is far more prevalent in these regions (America’s former industrial heartlands) than in the rest of the country. Along those lines, many participants in urban policy discourses have suggested that shrinkage and decline are generally the results of the three primary structural forces that have infamously contributed to patterns of plight in the Rust Belt and similar industrial areas: deindustrialization, suburbanization, and demographic change.

Put another way, because of their known effects on the Rust Belt, deindustrialization, suburbanization, and demographic change are regularly proffered as the primary “causes” or “drivers” of shrinkage

This report is Part 1 of a three-part series that examines the roots and spatial patterns of economic distress in the City of Buffalo, NY, and engages with strategies for reinvestment in the City’s chronically distressed neighborhoods. The series is adapted from a collection of peer-reviewed articles and books listed in the “Further Reading” section at the end of each report.

Part 1 of the series briefly and selectively introduces readers to the history and empirical evidence of urban decline in the postindustrial United States generally, and in the City of Buffalo specifically. The report provides background definitions, highlights spatial patterns, and summarizes findings from data analyses.

**...parasitic urbanization has placed countless shrinking communities... into vicious cycles of harmful, self-reinforcing demographic, economic, and physical change.**



and decline in general.<sup>11</sup> While there is far more than a kernel of truth to that claim, the reality is that many of America's older cities have histories of distress and urban decline that predate mid-century manufacturing job loss, suburban explosion, and massive depopulation. In other words, even when urban growth was distributive at the city scale, it was far from equitable at a neighborhood scale. One source of information on these earlier patterns of disinvestment are the controversial, highly racially discriminatory, Home Owners' Loan Corporation (HOLC) maps that were produced between 1935 and 1940.

## Redlines and Urban Decline

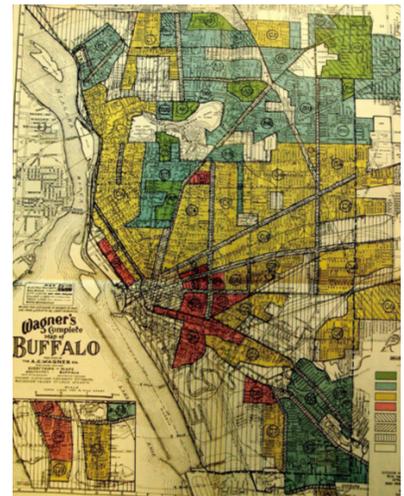
A New Deal agency, HOLC was broadly charged with helping to expand homeownership, standardizing real estate lending practices, and catalyzing new real estate investment in the post-Depression United States. According to Robert K. Nelson and colleagues, who developed the online Mapping Inequality portal hosted by the University of Richmond's Digital Scholarship Lab:<sup>12</sup>

**HOLC recruited mortgage lenders, developers, and real estate appraisers in nearly 250 cities to create maps that color-coded credit worthiness and risk on neighborhood and metropolitan levels. These maps and their accompanying documentation helped set the rules for nearly a century of real estate practice. They have also served as critical evidence in countless urban studies in the fields of history, sociology, economics, and law. Indeed, more than a half-century of research has shown housing to be for the twentieth century what slavery was to the antebellum period, namely the broad foundation of both American prosperity and racial inequality.**

At bottom, the HOLC maps "graded" neighborhoods in an effort to help lenders identify where real estate investments were relatively safe and relatively risky. There were four possible grades to which a city's various neighborhoods could be assigned:

- A: Best;

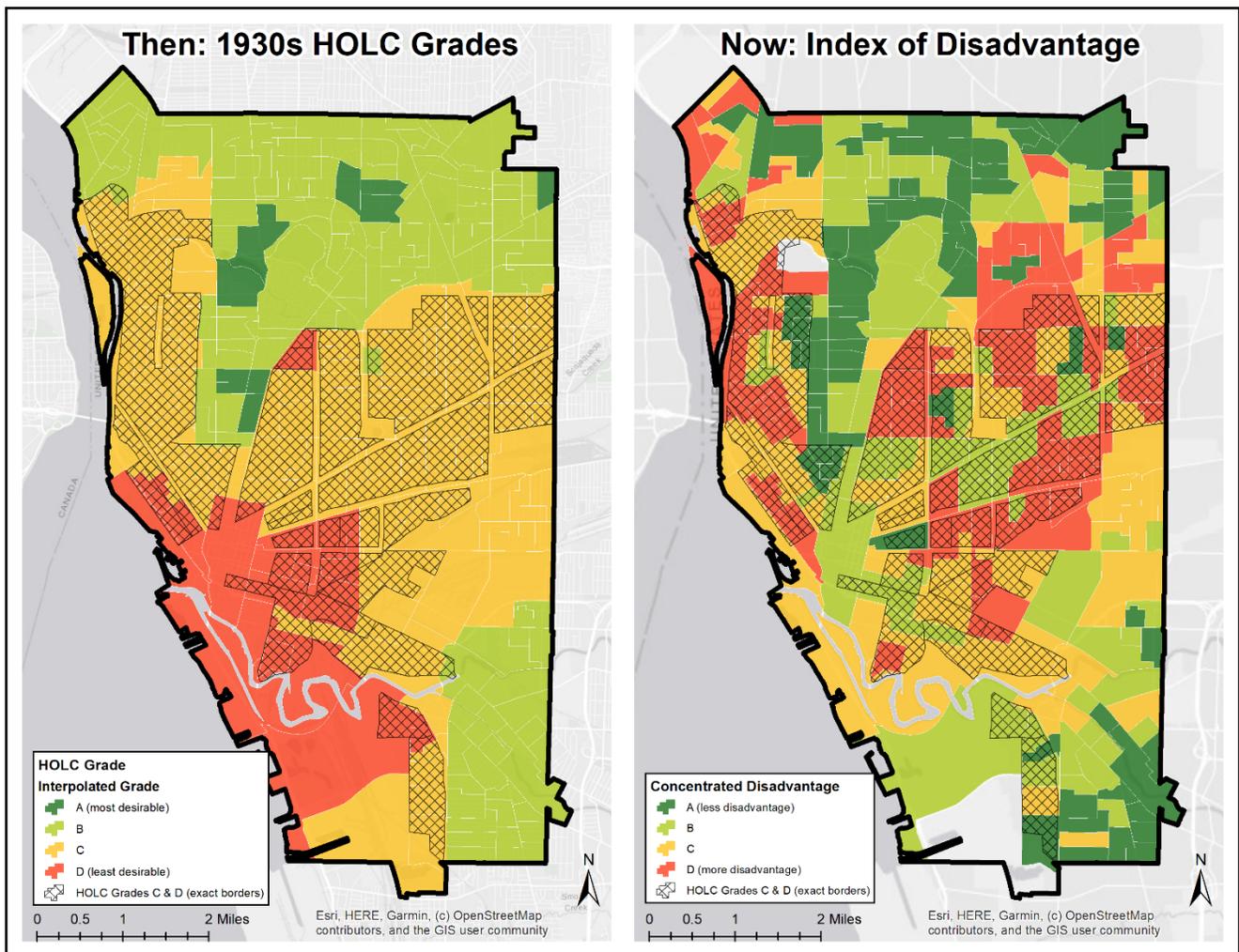
**...even when urban growth was distributive at the city scale, it was far from equitable at a neighborhood scale.**



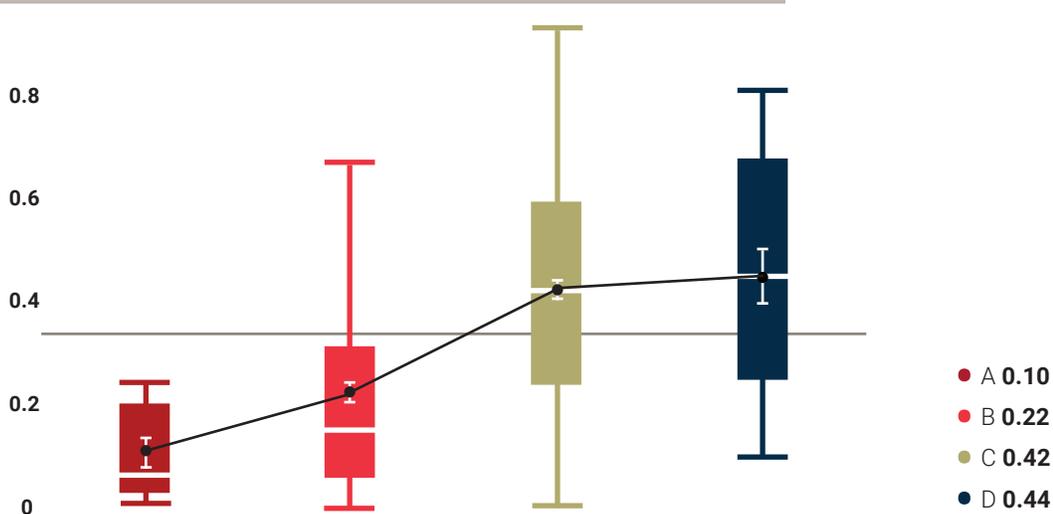
- B: Still Desirable;
- C: Definitely Declining; and
- D: Hazardous.

Grades of C and D were seen to be risky investments. While the physical quality of homes in these areas was a consideration to their poor grades, most scholars and historians agree that the major factor was a neighborhood's racial makeup. Almost invariably, neighborhoods graded D were characterized by a strong presence—or, as the HOLC maps troublingly stated, “infiltrations”—of racial and ethnic minorities. Such neighborhoods were symbolized in red, hence the now-common term “redlining”.

The sample used here, while not perfect, is not arbitrary and was designed to recruit a broad variety of low-wage workers.



## CONCENTRATED DISADVANTAGE INDEX, MEAN BY HOLC GRADE



The boxplots above illustrate the distributions of values of the disadvantage (CD) index, by census block group, by HOLC grade. The black line shows the mean, or average, value of the CD index for each HOLC grade category. These values are also reported in the table to the right. As expected, average levels of disadvantage are significantly higher in poorly-graded block groups. The takeaway is that neighborhoods that were perceived to be distressed in the HOLC's heyday, from the 1930s-1940s, still appear to be more distressed than other parts of the City today—going on a century later. Conventional, growth-oriented economic development practices have not brought broad-based, local wealth to these places—a new, High Road approach is needed.

At the time the HOLC maps were drawn, redlining (note that it would be decades before the practice received this pejorative moniker<sup>14</sup>) was thought to be “good business,” in that it sought to minimize the number of loans granted for purchasing properties that were likely to experience devaluation.<sup>15</sup> Regardless of intent, however, redlining was highly discriminatory in practice, as areas with high relative concentrations of low income households and/or racial and ethnic minorities (especially African Americans) “were consistently given a...‘hazardous’ rating and colored in red”.<sup>16</sup> As a result, beginning with the Fair Housing Act of 1968, numerous pieces of legislation and subsequent judicial decisions have established, unequivocally, that redlining is an illegal practice. Despite this prohibition, though, numerous scholars agree that redlining has a legacy. Kenneth Jackson’s seminal book *Crabgrass Frontier*, for instance, makes the case that HOLC-informed redlining jumpstarted the patterns of suburbanization and demographic change that are inexorably used to explain patterns of population shrinkage and decline in America’s Rust Belt

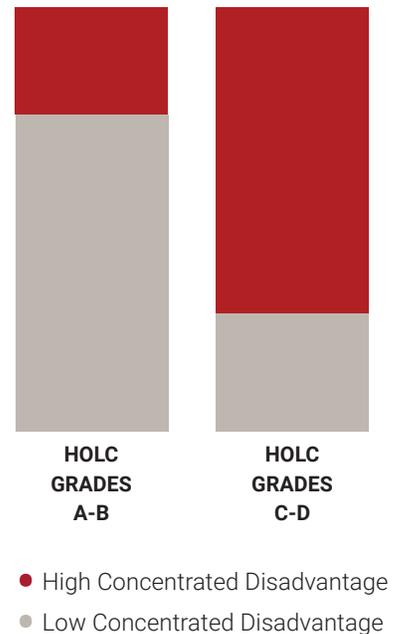
**Regardless of intent, however, redlining was highly discriminatory in practice...**

(see p. 3 above).<sup>17</sup>

While there is still some skepticism about the exact role the HOLC maps played in American urban decline and the fates of shrinking cities,<sup>18</sup> the maps themselves are indisputable evidence that certain neighborhoods in selected American cities were perceived to be in distress, and declining, as early as the 1930s. In that sense, they allow for the development of a clearer temporal understanding of the “cumulatively causative” nature of urban decline introduced above. Stated more plainly, if urban decline is subject to cumulative causation, which is a notoriously difficult process to interrupt,<sup>19</sup> then one might expect that the red- (and orange-) lined areas from the HOLC maps will be in relatively greater states of distress today compared with areas that were deemed to be the “best” and “still desirable” in the 1930s. To investigate this possibility for the City of Buffalo, each census block group in the city was coded with its corresponding grade from the HOLC map (see the “Technical Notes” section for additional details). Then, using current U.S. Census American Community Survey (ACS) data, an index of concentrated disadvantage (CD) was computed for each block group. CD is a concept with a long history in scholarship on issues relating to social equity, and it is generally represented with a proxy index created by combining area-based measures of selected disadvantaged population subgroups. In this case, drawing on instructive literature, the block group-level indicator variables used to create the index were: (1) the fraction of persons of color; (2) the fraction of single-parent households; (3) the block group’s poverty rate; (4) the block group’s unemployment rate; (5) the fraction of adults without a high school education; and (6) the fraction of households receiving public assistance income. The composite CD index created from these six input variables was rescaled to range from 0 (low/no CD) to 1 (extremely high CD).

The figure atop page 6 shows that the average CD index for block groups graded as “Hazardous” (D, mean=0.44) by the HOLC is now more than four times higher than the mean CD value for the “Best”-graded (A, mean=0.10) block groups. According to an analysis of variance (ANOVA), the differences observed in the means across HOLC grades were so extreme that they would only occur by chance in fewer than one out of every 100,000 cases. Post hoc tests revealed that there were no significant differences between A- and

#### DECADES OF DISADVANTAGE



**•Block groups linked to HOLC grades of C or D account for 55% of all current block groups in the City of Buffalo**

**•At the same time, C- and D-graded block groups account for a disproportionately high 78% of block groups with above-average levels of concentrated disadvantage**

**•This association between poor (good) HOLC grades and high (low) CD is highly statistically significant ( $p < 0.0001$ )**

B-graded block groups, nor between C- and D-graded block groups; that is, areas that the HOLC rated as “Still desirable” or better in the 1930s have similar (low) levels of concentrated disadvantage today; while block groups rated as “Definitely declining” or “Hazardous” have similar (high) levels of CD today.

## Redrawing the Lines

Disproportionately many racially and ethnically diverse communities on Buffalo’s East and West Sides were flagged as being “hazardous” or otherwise undesirable spaces in which to invest as early as the 1930s. In the nearly nine decades that have passed since the HOLC maps were first produced, the landscape of spatial inequality in the City has barely shifted. While there have certainly been reinvestments and signs of recovery in downtown Buffalo and west of the Elmwood Village, empirical research has demonstrated, on numerous occasions, that those developments are not benefiting the most marginalized and disadvantaged groups; rather, benefits are more likely to accrue to gentrifiers and other comparatively privileged groups and institutions.<sup>20</sup>

This somber reality—that some areas of Buffalo have plausibly been trapped in “downward spirals” of decline for going on a century<sup>21</sup>—suggests that many of the problems related to the phenomena of urban decline might be wicked problems. That is, issues like segregation, chronic unemployment, depopulation, and concentrated disadvantage are resistant to clear definitions and singular technical solutions—in the main because they are so closely interconnected with one another, and with a host of other social, cultural, political, and economic problems.<sup>22</sup> From a policy perspective, this realization is particularly vexing; for, as some authors have observed, “the conventional structures and systems of the [local] public sector are not scoped to address the tasks of conceptualizing, mapping, and responding to wicked problems.”<sup>23</sup>

**On that note, erasing the persistent red lines of urban decline calls for working outside of conventional tool-boxes, and from within new mental models.**

Indeed, conventional responses to decline from across the political spectrum—from the heavy-handed government spending projects of the 1960s (in the name of “slum clearance”) to the laissez-faire, market-led, public entrepreneurial approaches that have been in vogue since the 1980s—are repeatedly critiqued for reinforcing

**In the nearly nine decades that have passed since the HOLC maps were first produced, the landscape of spatial inequality in the City has barely shifted.**

rather than alleviating conditions of concentrated disadvantage and social polarization. How, then, might local governments and/or coalitions of local governance begin to move forward?

### Decouple growth and development.

Generally speaking, growth refers to an upward quantitative adjustment to the size or scale of something, such as a population or economy (e.g., more people or more jobs). Development is an upward qualitative adjustment to the public goods, services, and/or opportunities available to people in a given place. Development manifests as increased well-being for an existing population or economy, while growth is evidenced by an expanding population or economy. Whereas this distinction between externally-minded growth and inwardly-focused development is a staple in scholarly literature,<sup>25</sup> in practice, North American planning and policy institutions still largely operate from within a mental model which holds that, by increasing the size of the aggregate economic pie, growth will necessarily bring development. Put another way, many still subscribe to the adage that a rising tide lifts all boats.<sup>26</sup> Among the reasons for the durability of this mental model is the fact that residents (i.e., voters) in persistently shrinking or declining places often become disaffected and demand some—any—type of visible, tangible action or change.<sup>27</sup> Accordingly, local public decision-makers might feel pressure to inject new life into these areas, frequently through attempts to attract new residents (e.g., appealing to members of the so-called “creative class”) and businesses.<sup>28</sup> The result is that many shrinking places tend to devote more energy and resources to modern-day (both residential and commercial) equivalents of “smokestack chasing” than to identifying and building local assets and capacities.

### Take the High Road: pursue place-based, but people-led interventions.

Chasing smokestacks is almost always a low-road, property-led strategy that aims to visibly alter a declining area with injections from the outside—e.g., public demolitions without planned reuses,<sup>29</sup> “signature” subsidized development projects in strategic locations,<sup>30</sup> or subsidized firm relocations to bring in jobs without expressing concern for the wages and benefits that those jobs will offer local residents. Not surprisingly, these conventional initiatives rarely live up to their purported ability to generate positive, trickle-down effects

**Development manifests as increased well-being for an existing population or economy, while growth is evidenced by an expanding population or economy.**

**...[low road economic development] initiatives rarely live up to their purported ability to generate positive, trickle-down effects in their surroundings.**

in their surroundings.<sup>31</sup> In contrast, strategies that lead with the people, and that focus on the internal capacities, needs, and local contexts of specific places, originate from a mental model in which the goal of development supersedes the goal of growth. That is, place-based, people-led strategies travel the high road toward destinations where existing, local residents are empowered, and where local quality of life has been meaningfully improved. They do away with the entrenched goal of growth for growth's sake, and they place appropriate value on a place's existing, potentially latent, assets and capacities.

**Be inclusive. Be collaborative. Be patient.**

Taking the High Road often means taking time. That persistent patterns of spatial inequality have existed in Buffalo for at least 85 years suggests that disadvantaged communities will not recover overnight, no matter how much their residents deserve it and no matter how much proponents of conventional, smokestack-chasing-style development might promise it. The reason that the High Road tends to make for a long journey is that taking it often means transforming old mental models, and, crucially, including, respecting, and celebrating the contributions of new voices.

It is all but certain that the insiders who drew the HOLC's (in)famous red and orange lines came from privileged social positions and put the needs of capital ahead of the needs of people and communities. In the nearly nine decades that have passed since that time, volumes of scholarship, as well as countless lessons learned from practice, suggest that it will be inclusive, representative, forward-looking groups of citizens working together who will erase those lines and start to solve the wicked problems of persistent decline and spatial inequality.

**How can these changes occur in practice? Has it been done? At what scale(s)?**

The ideas from this section are not new, nor are they particularly radical. Place-based, people-led community development strategies have been in operation and/or experimented with at a variety of spatial scales, in very different contexts, across the globe, probably since the problems of urban decline affected the world's first cities. Nevertheless, to the extent that realizing transformational change necessitates long, windy, and difficult treks along the High Road, it is easy to look past solutions and strategies that are hiding in plain

**The reason that the High Road tends to make for a long journey is that taking it often means transforming old mental models [and] including, respecting, and celebrating the contributions of new voices.**

sight—namely, the assets, capacities, and people already present in distressed communities. Parts 2 and 3 of this series describe conceptual frameworks for identifying and investing in those assets and capacities. They then showcase examples and public policy programs in the City of Buffalo that just might be making some headway—on a block-by-block basis—in disrupting persistent decline in targeted distressed communities.

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## CONCLUSION

**Leverage points are places to intervene in a system, where making some sort of strategic modification could nudge the system toward a different, preferably more desirable state. One generic leverage point in any system is the suite of mental models that allows the system to continue functioning as it currently is. If a goal of planners and policymakers is to disrupt existing patterns of parasitic urbanization, then one objective ought to be to transform the values, beliefs, paradigms, and other mental models that underlie them and consistently allow them to manifest across space and time. Replacing growth-oriented beliefs and goals—and the low-road, property-led practices that emanate from them—with commitments to development, inclusivity, collaboration, patience, and place-based capacities is the first step along a High Road that leads beyond red lines and toward more equitable futures.**

## Technical Notes

### ASSIGNING HOLC GRADES TO CURRENT CENSUS BLOCK GROUPS

The left panel of the map featured on page 5 of this report shows the spatial distribution of HOLC neighborhood grades at the current census block group level of analysis. The exact boundaries of the areas graded by the HOLC, as well as the distribution of grades, can be found at the University of Richmond's Digital Scholarship Lab: <https://dsl.richmond.edu/panorama/redlining>.

Readers familiar with the HOLC map for Buffalo might recognize that the HOLC did not rate all areas of the City, omitting the central business district as well as spaces that were primarily industrial at the time the maps were created. To obtain grades for the unrated areas, in order to perform data analyses for the entire City of Buffalo, the report relied on a three-step process. First, a fishnet containing 500-foot by 500-foot grid cells was overlaid onto the city of Buffalo. Exactly 4,587 of those cells were characterized by centroids (centermost points) that intersected with the City of Buffalo municipal territory that is illustrated with a thick black line in the map on page 5. Of those cells, 2,577 (56.2%) fell within areas graded by the HOLC. Those locations were accordingly assigned their observed HOLC grade. Second, drawing on the known 2,577 values just described, an inverse distance weighted (IDW) interpolation was used to create a continuous surface of HOLC grades that covered the entire extent of the City. Grades for the 43.8% of fishnet cells with "unknown" HOLC grades were then extracted from that surface. Finally, each cell from the fishnet was spatially joined to the current census block group in which it fell. From that join, the average HOLC grade for each block group was computed. The resulting distribution aligns perfectly with the original HOLC map, insofar as block groups that lie wholly within HOLC-graded areas have the same "average" grade on page 5 that they have in the original HOLC map available at the link provided above.

### MEASURING CONCENTRATED DISADVANTAGE AND PERFORMING THE ANOVA

There are at least three ways to combine the "indicators" of concentrated disadvantage (CD) described on page 7 to create a composite index of CD: (1) converting the indicators into standard (z) scores and averaging the resulting z-scores;<sup>32</sup> (2) performing a factor analysis and extracting a single factor solution;<sup>33</sup> or (3) computing the geometric average of the indicators using a recommended zero replacement strategy.<sup>34</sup> While none of these methods is inherently the best or unambiguously better than the others, the latter technique is quite useful for capturing compounding (or intersecting) effects—i.e., because it is based on a product, rather than a linear combination, it conveys important information about where all of the indicators of distress intersect with one another. On that note, this research brief acquired data for the six indicators from the most recent (2013-17) Five-Year U.S. Census American Community Survey (ACS) for all block groups in Erie County, and computed the multiplicative/geometric average of those variables for each block group. The resulting values were then re-scaled so that the CD index ranged from 0 (lowest observed CD in Erie County) to 1 (highest observed CD in the county). The rescaling was done by subtracting each block group's CD index from the minimum CD observed in the dataset and dividing by the difference between the maximum and minimum observed CD values (NB: this technique is used by the United Nations in computing its composite Human Development Index).

The rescaled index of CD was then subjected to an analysis of variance (ANOVA). ANOVA is a generalization of the common t-test that tests the null hypothesis of equal means across two or more categorical groups. Like the t-test, ANOVA is robust to departures from the assumption of normality, but it is highly sensitive to departures from the assumption of homoscedasticity. Both the Brown-Forsythe ( $F[3,281]=2.60$ ,  $p=0.052$ ) and Levene ( $F[3,281]=2.32$ ,  $p=0.076$ ) tests revealed that heteroskedasticity was not an issue. Therefore, the ANOVA could be carried out as planned. The results of that test are shown here:

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F RATIO	P
HOLC Grade	3	3.30	1.10	23.73	<.0001*
Error	281	13.04	0.05		
Total	284	16.34			

In short, the null hypothesis that average CD is equal across all four HOLC grades is easily rejected. That is, block groups from at least two HOLC categories have means that are farther apart than what would be expected by chance alone. In a follow-up analysis of post hoc pairwise differences, then, Tukey's honest significant difference (HSD) revealed that grades A and B were not significantly different in current levels of CD, and neither were grades C and D. However, all comparisons of the former two grades (A and B) with the latter two (C and D) were statistically significant. In other words, they could not have occurred by chance alone.

LEVEL-LEVEL		DIFFERENCE	STD ERR	LOWER BOUND	UPPER BOUND	P
D	A	0.34	0.08	0.12	0.56	0.0004*
C	A	0.33	0.07	0.13	0.50	<.0001*
D	B	0.22	0.05	0.09	0.36	0.0002*
C	B	0.20	0.03	0.13	0.27	<.0001*
B	A	0.12	0.07	-0.07	0.30	0.3680
D	C	0.02	0.05	-0.11	0.16	0.9704

\* $p < 0.01$

In sum, neighborhood ratings from circa 1935 still translate to differences in disadvantage today, going on 90 years later.

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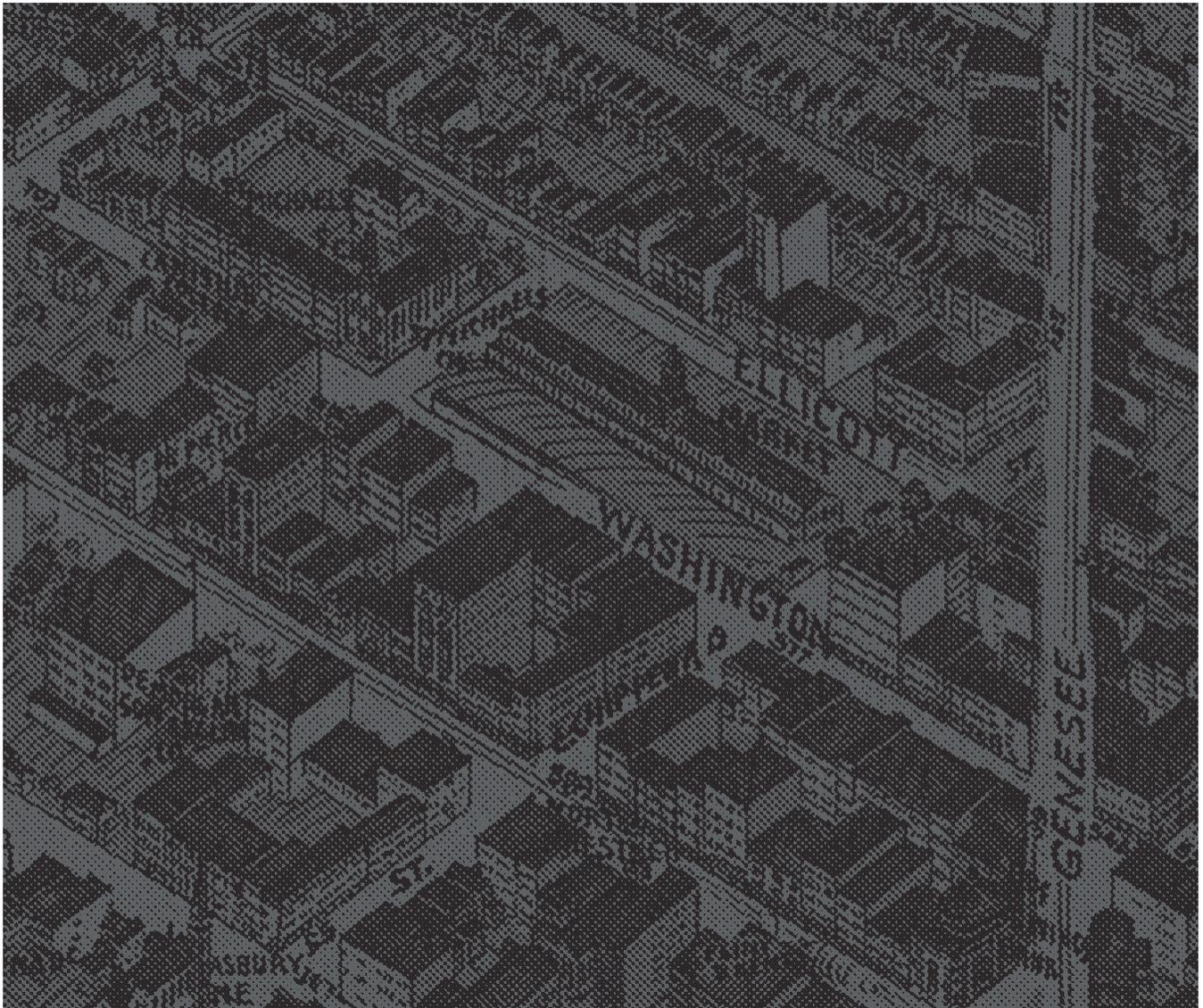
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