Recalibrating Detroit

Incremental Neighbourhood Revival Through Densification

by
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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

What the example of Yuzha shows is that modernization of the city cannot be directly linked to economic growth. In a situation of continuing poverty, where survival is not a temporary condition but a permanent one, the production of a new urban substance is simply not possible. Thus, reinventing the existing city becomes the only way to keep it for the future. And that marks the moment when the new urban form emerges: the new urban form without new urban mass.[1]

Alexander Sverdlov, "Five Points about the City of Yuzha," (2005)

Abstract

This thesis analyses factors responsible for Detroit's past growth and delves into its current transient culture. The phenomena of its urban shrinkage is more than just a demographic shift. It is a harbinger of qualitative changes that permeate social, economic and cultural aspects of Detroit's urban life. The phenomena of shrinking cities has challenged architecture and planning disciplines to seek a divergent role. One tasked with a quest to find urban constraints propagating its temporality, and then speculating a new sustainable urban form and a process for achieving it.

In order to halt urban shrinkage, Detroit will have to set itself on the path of urban recalibration. It further proposes an animated process, leading up to an urban model of a polycentric net with nodes of vitality to provide focal points for urban recovery of its neighborhoods. The analysis of the current urban fabric is focused on urban density, continuity, and the quality of the urban grain. In order to achieve a new paradigm, this thesis proposes a phased process for incremental densification while reprogramming its urban grain of community life and its built environment. Incremental densification is a systemized bootstrap process, flexible and adaptively responsive to urban transience and indeterminable prognosis. To achieve a sustainable urban form, each modest phase can then be incrementally implemented by the residents and small scale actors, all free from large scale corporate and speculative builders.

1 Alexander Sverdlov, "Five Points about the City of Yuzha," Philipp Oswalt, *Shrinking Cities: International Research,* (2007), Pg. 653

Acknowledgements

To Prof. John Abela, Architecture Department at Lawrence Technological University, Southfield, Mi. and Prof. Kenneth Snell, coordinator at the Sheridan College, Ontario, this one is for you…

To Val Rynnimeri and Adrian Blackwell, I would like to extend my deepest gratitude and appreciation for their guidance and direction throughout this thesis. Over the course of this thesis, they have shared an amazing wealth of knowledge and insight, and I am eternally grateful for that generosity.

I must also acknowledge my key contacts within Detroit who have been tremendously helpful to my research and thesis development. Mr. Edward Lynch of Hamilton Anderson Associates and Miss. Jessica Brooks Williams, event planner at Life Remodelled.

Special thanks to Jake Lovie for providing technical support for GIS maps.

I would also like to thank my family and dearest friends for their continued love, support and patience throughout my professional and educational career.

Dedication

To my mother-in-law and brother, Dr. Iris Samuel and Dr. Shahbaz Khan.

To my family, friends and colleagues, who have showed me to never give up.

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The block of marble from which Michelangelo wrestled his figures was destroyed to give way to the sculptor's creation. Michelangelo, the stereotypical demiurge, was well aware of the power the exercised over his matter.2 Chiselling an image out of a block of Carrara marble left him with two kinds of matter – the spent and the living. With the living block he went further and shaped it into a being with character and beauty. What if it did not live up to his expectations? Did he kill it? Sometimes he did, indeed. Sometimes he found himself ending up with smaller or larger mutilations, almost Japanese-like "wabi" – a deliberate flaw, a crack, in order to render the piece less godlike, more human.1

Thomas A.P. van Leeuwen, "Architects, Demolish! The Dual Nature of Creation and Destruction," (2005)

Author's Note

When analysing the urban variability and the role of architectural discipline imagining its form, one has no choice but to look at the available context, with all its flaws. It is hard to resist the initial temptation to create a tabula-rasa, a clear real estate, and to start over. In doing so, architecture has to assume the unfamiliar role of the un-maker. At first this strikes as a rather absurd idea, but if given a thought, perhaps it is time for architecture to explore a new identity. One, where it has to re-tool itself so as to be the discipline that can plan the deliberate unmaking of things that have reached their end of time. This is not the undoing that's an expression of rage and misgivings. Instead, like Michelangelo, it is a thoughtful act for the "living" block, reshaping the environment, embrace its limitations, embody its historic character, and evolve into a healthy paradigm that's even more…'human'.

Literature by social activist Jane Jacobs, architects Christopher Alexander, Oscar Newman, Tom Bergevoet and Maarten Van Tuijl have profoundly influenced the thinking and design of this thesis. Writings by urban planners Clarence Perry, Kevin Lynch, Charles Waldheim and environmental scholar James J. Kay and architect Colin Rowe have immensely impacted the urban analysis to define a new urban paradigm for the city of Detroit and for other urban areas as well.

It is important to note that this paper uses references to multiple ethnicities, since they form part of the analysis presented in the study. The terminologies are taken from current literature and research on Detroit, and are not intended to represent a derogatory opinion in any way.

1 Thomas A.P. van Leeuwen, "Architects, Demolish! The Dual Nature of Creation and Destruction," Philipp Oswalt, *Shrinking Cities: International Research,* (2005), Pg. 653

CHAPTER ONE INTRODUCTION

1.1 Incremental Densification

Transient Culture

As 21st century globalization has created the economic super-nations, it has deepened the divide between winners and losers within capitalist urban cultures. A transient culture, rooted in individualistic and corporate objectives, fueled by the relentless desire for material accumulation. Winners are mobile to pursue opportunities. The others are left behind, unprepared and immobile in decaying communities.

Post-industrial American cities have demonstrated urban shrinkage to varying degrees, but none is as extreme as Detroit allowing it to claim the status of being the poster-child of shrinking urbanism. The growth in Detroit's metro areas is in its centrifugal perpetual hyper-suburbanization and is shaped by several complex forces to-date. Detroit's downtown core has been stable through years of municipal and corporate actions however, the residential neighbourhoods close to city boundary, are unevenly de-populating and physically deconstructing. The city is showing clear signs of bi-polarity. A growing bereft zone, as stated by Joshua Bedard in his 2009 University of Waterloo thesis[1], separates the two. This growing urban void or the bereft zone, is causing segregation between the neighbourhood areas and the central business district (CBD). The stability of the CBD therefore, has very little, if any impact on the neighbourhoods. Urban segregation leads to processes generating consistent neighbourhood de-population, and are self-catalyzing, providing further feedback to the causal issues. To become sustainable, Detroit requires a sustainable urban vision with healthy processes and a flexible plan to work towards it. To be grounded, the urban paradigm has to be rooted in a comprehensive analysis of its creation leading up to its existing urban condition.

The city - this city - was never meant to be like other cities, especially European cities, with a population achieving a certain size and density and then remaining there, for generations; Detroit was always on the way to becoming something else, with a population that no sooner peaked than it began immediately to shrink. The riot of 1967 was still almost two decades off when this ex-migration began, so that wasn't the reason. Not that there's a single or a simple explanation. But one thing is clear. The people who came here never intended to stay. And it is this prospect of improbable - but indicative - human behavior that has been making Detroit significant almost from the beginning.[2]

Jerry Herron, "Borderland/Borderama/Detroit: Part 1, 2, 3." (2010)

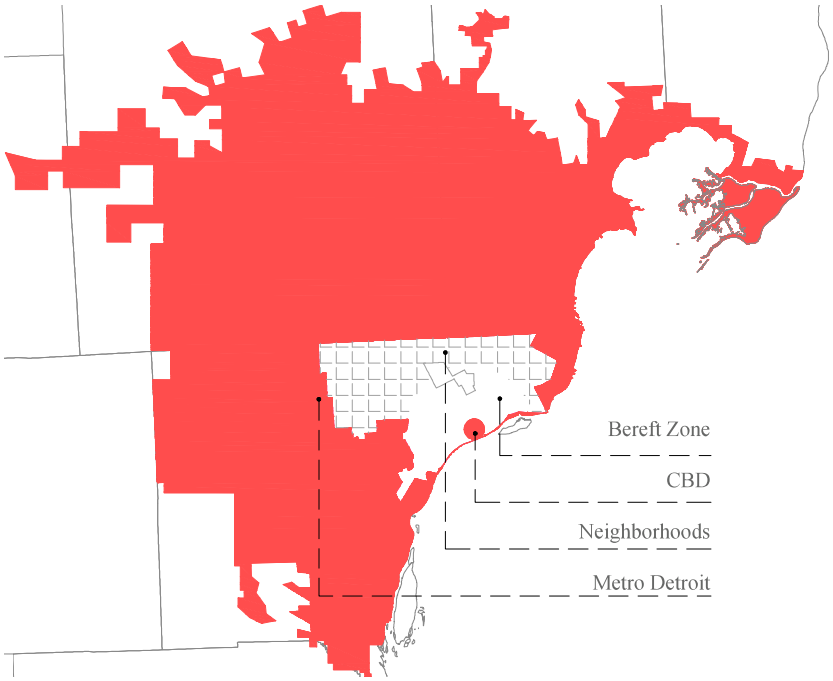


Figure 1.1 (above) Metropolitan Detroit area and City of Detroit
Drawn by Author

—and literary snobbism apart- there still persists the suspicion that, both psychologically and heuristically, the detective story is an illustration of the problem-solving process (deprived of funny mystifications) as it is widely understood to be. Meaning that, in spite of the showy histrionics of the final presentation, the detective story is always a relatively modest affair. It is two-pronged and hybrid; and its success derives from a conflation of findings – the often naïve discoveries of unsuspecting cops and the alternative suppositions of the all-suspecting detective, the ultimate sceptic, who, in spite of his temperament, never imagines that pretentious speculation will conceal the lesion between things as they seem and the solution as it must be.[3]

Colin Rowe, "Program vs. Paradigm", *Cornell Journal of Architecture.* (1983)

The Paradigm

Cities are the dynamic arenas for a variety of intricate everyday interactions between residents and strangers. A good city offers a variety of choices, enriched with opportunities. It 'becomes' the genius loci, successfully bringing together a variety of people for common interests. To be successful, a city must be capable of self-organising within its manageable sub-components. There are multiple scales and hierarchies of governance within a city. Jacobs points to three main scales as; City as a Whole, Neighborhood Districts and Street Neighborhoods[4]. When exploring the re-making of a 'good city', out of the realm of a shrinking city, it is paramount to define the spatiality of its sub-components that can support and create a new form of governance. The sub-components, namely the neighborhood districts and the street neighborhoods must be geographically conducive and coherent to allow residents to come together to form themselves as strong organs of self-governance.
City's streets are the center stage where all the community interactions occur. For a sustainable city, its streets must be calibrated to support the nature, degree and diversity of its use. To generate the street activities the art of city design and the science of city planning have to be mutually employed. In her book, "The Death and Life of Great American Cities", Jane Jacobs speculates that there are four primary conditions required to generate city vitality. These four conditions are, mixed-use typologies, small blocks, mixed age buildings, and high density of users. When explored individually, each one of these conditions is found to play an empirical role in the creation of well-activated streets creating an environment where people have the possibility to self-organise for sustainable economic and social interaction[5].

In order to be sustainable, a city must adapt to the changing demands of time. In a shrinking city, transience is not a temporary condition but heightened and permanent one, with increasing momentum. Heightened, because a few key controlling processes could create

divergent results through underlying feedback, permanent because its existing structure is evolutionary, and not created in a short span of time but slowly emerged over several generations, it therefore could take generations to become stabilized again[5]. So the tradition of planning a city using a conventional 'blue-print' or a new "master plan" as a tool is illogical and probably pointless. For attaining a sustainable development, planning must employ more sensitive tools for implementation, while becoming flexible in its approach to implement itself adaptively.

Urban paradigm can be analysed using systems thinking. People need people and are self-organising in communities. Such a process can be laid out in a framework of a Self-Organizing Holarchic Open System or SOHO[7]. Through such systems thinking, Detroit's neighbourhood condition can be analysed holistically and hierarchically, while recognizing that this issue is complex, multi-layered and operating at different scales. The thesis analysis, framed through such a complex systems thinking approach shall examine a variety of processes acting at multiple scales in Detroit and metro areas and perform a holistic resource analysis.

The unique set of actors and attractors that create development processes give each system its innate ability to self-organise and form its unique identity. Internal processes and patterns of relationships are further created and developed overtime. Such transformative relationships evolve and unfold, and cannot be predicted completely in human systems[7]. However, the inherent evolution based on propensities can be studied and a set of intuitive and counter-intuitive possibilities can be modeled for a foreseeable future.

The idea that systems behave 'as a whole' is at the foundation of system thinking for this thesis. Explanation and analysis of a system's behaviour cannot be done through a simple collection of individual elements[6]. Systems thinking is the antithesis of prevailing rationalist and reductionist approaches to planning, with their limitations towards explaining transient elements in an evolving, emergent system.

In the following chapters, the historic context of Detroit shall be viewed as a set of processes each studied as an adaptive cycle within its nested scale.
Systems thinking, shall equip this thesis with an investigative tool and a communication platform for conceptualizing, navigating through and analysing complex self-organizing phenomenon.

Systems thinking is about patterns of relationships and how these translate into emergent behaviors…Systems thinking provides us with a window on the world that informs our understanding of nature and our relationship to it. It provides us with a way of framing our investigations and a language for discussing our understanding. Translating systems thinking into action is what systems approaches are about.[8]

James J. Kay (2008)

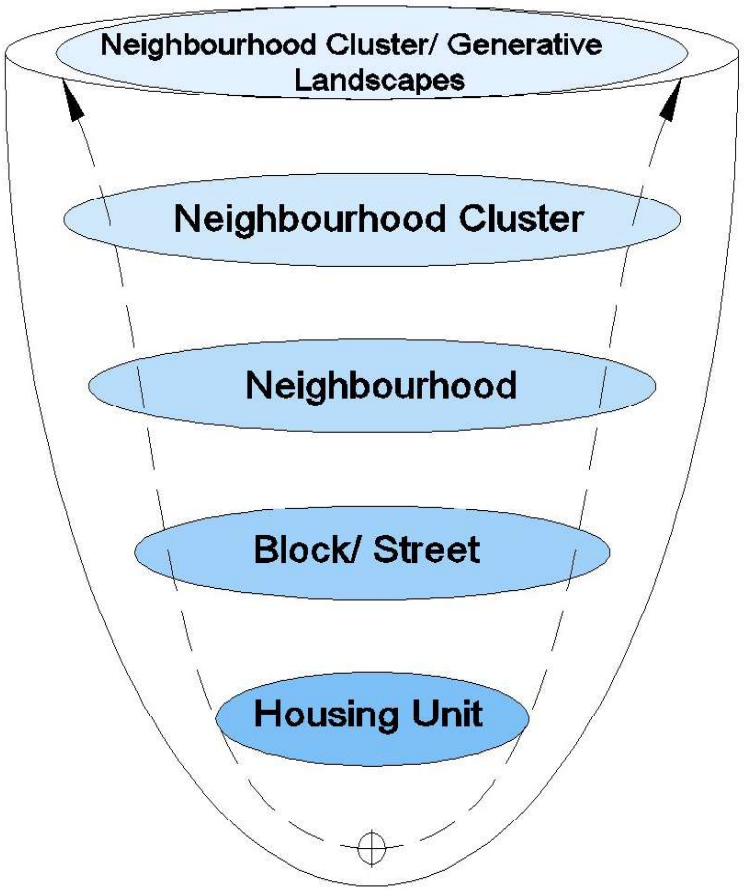


Figure 1.2 A conceptual model of neighbourhood holarchy, with nested scale of holons, based on James J Kay. (James J. Kay 1999)

DEFINITIONS

Sustainable development; "Sustainability is the capacity to create, test, and maintain adaptive capability. Development is the process of creating, testing, and maintaining opportunity. The phrase that combines the two, "sustainable development," thus refers to the goal of fostering adaptive capabilities and creating opportunities. It is therefore not an oxymoron but a term that describes a logical partnership."

Hierarchy; This word is used not in the sense of a top-down sequence of authoritative control. Rather, semi-autonomous levels that are formed from the interactions among a set of variables sharing similar speeds, geometric/spatial attributes.

Scales: Transformational cycles take place in nested sets at scales ranging from a leaf to the biosphere over periods from days to geologic epochs, and from the scales of a family to a socio-political region over periods from years to centuries. Fig 1.2 represents a holon with nested scales of holons forming a holarchy.

(above based on) Crawford Stanely Holling, "Understanding the Complexity of Economic, Ecological, and Social Systems," *Ecosystems*, (2001), Pg. 392.

Holarchy: A holarchy is a generalized version of a traditional hierarchy. It is not a hierarchy of top-down power, but is contextual and represents functional and causal relationships between holons.

Holon: The term "holon' (etymologically derived from whole/part) is a functional entity, with a degree of autonomy acting simultaneously as a part and a whole.

(above based on) James J. Kay, "An ecosystem approach for sustainability: addressing the challenge of complexity," *Futures Vol 31 # 7*, (1999), Pg. 724.

Existing Urban Models

The big thesis question then is, why is Detroit unable to hold its middle class and grow again? According to Jacobs, a sustainable urbanity is potent with urban processes that encourage and enable the social class of users to have a constant upward mobility. The urban model fails when it fails to foster these processes and their feedbacks.

The success of architecture and urban planning, therefore, is dependent on how conducive it is to foster healthy processes. It is important to note here that these processes vary for different user groups. The intense de-industrialization of Detrorit after 1970's took away the economic processes and jobs required by the residents. The middle and upper-middle class residents left due to the absence of one pre-condition, a working economic environment. Urban models calibrated for automobile enabled users generated a different set of urban processes for the original residents. Current residents are mostly pedestrian and transit dependent and require a different spatial environment that can generate urban processes conducive for them. Detroit neighborhoods have large residential blocks and their distances from commercial, public and economic activities are calibrated for middle-class, auto-enabled, relatively affluent families. The urban grain, density and resulting fabric was fit for the class of users at the time of its emergence, a working industrial economy supported the underlying socio-economic processes. At the time urban growth was an expectation, and therefore planned predictably. However, in the absence of a contemporary economic attractor, urban shrinkage is expected. It is unpredictable to plan for users today. Multi-dimensional factors causing shrinkage create a further mismatch between the urban processes and the spatial realm. Detroit's urban de-population therefore manifests itself in a random patchwork of unpredictable densities as seen in Figure 1.3. The working-class residents of today occupy an urban realm that was not designed to foster healthy socio-economic processes required for growth. The neighbourhoods never really evolved in a dense, convivial configuration, one that is pedestrian-friendly and suits transit dependent users. Thus negative, self-feeding cycles perpetuate hyper-suburbanization and the loss of jobs and middle class to the metro area. Detroit's underlying poverty grows and develops a consistently shrinking tax base, intensifying the system collapse.

The processes that occur in unslumming depend on the fact that a metropolitan economy, if it is working well, is constantly transforming many poor people into middle-class people, many illiterates into skilled (or even educated) people, many green-horns into competent citizens.[9]

Jane Jacobs (1961). Pg. 288

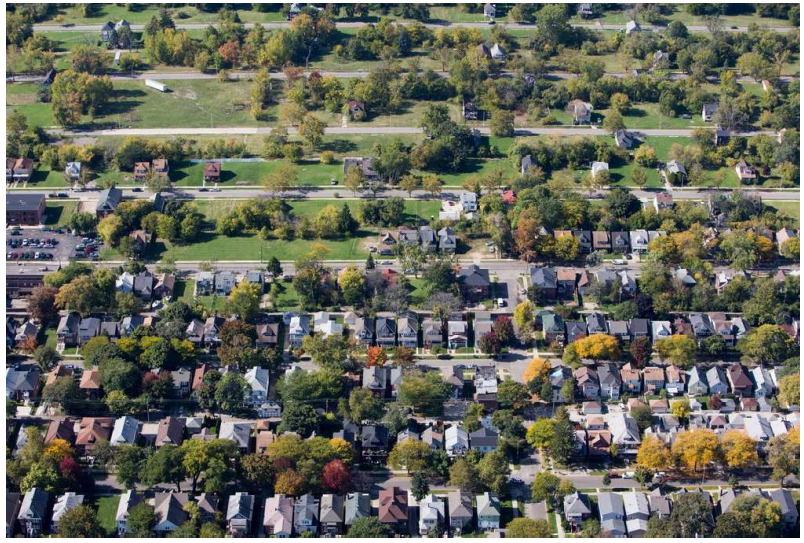


Figure 1.3: Alter Road (center) serves as a dividing line between vacant lots in Detroit and the wealthier suburb of Grosse Pointe Park, in the foreground.
Source: Alex S MacLean, *The New York Times, Detroit by Air* (2014)

Figure 1.4: Fire Damaged Structures. Photo Montage by Author

Neighbourhood Urbanity

The residents of Detroit neighbourhoods are still continually evolving to suit its transient spatiality. Such evolution of the neighbourhoods, due to new and different set of spatial and functional processes has resulted in an uneven and decaying urban fabric.

An analysis of Detroit's complex history explains the overwhelming magnitude of its hyper suburbanization. By the early 20th century, as the Ford, GM and Chrysler rose to become a household names, U.S capitalism generously shared its fortunes among the many, creating the largest worker community that was among highest paid in the world.[10]

The current city sprawl is shaped by the leap-frog spatial logic of the industrial era. It consists of a housing inventory of single family detached dwellings, sprawled out in an auto-centric urban grid all the way to the edges of Detroit. At the time when this housing stock was built, the newly, auto-enabled residents from early 19th century, demanded an auto-centric spatiality. It stretched along a one-mile square grid that did not calibrate to a pedestrian commute. The resulting functional urban grain is large, with warehouses, retail and auto service buildings dotting the arterial avenues, separated by heavy industrial corridors and railway lines as seen in Figure 1.5.

Since the 1970s, the persistent regional suburbanization outside Detriot itself has generated sporadic heterotopic landscapes, variable urban densities, and floating access networks that connect the two cityscapes. Such heterotopic growth continually disintegrates the urban neighbourhood context. The residents and the City of Detroit struggle to maintain a semblance of a city. The neighbourhoods governing policies and top-down structure are also based on a growth based urban model. With relentless de-population trends, these policies are rendered as unfit tools for a transformative urbanity for current and future. Working class neighbourhoods, once built to suit the demands of auto-centric lifestyles are now an unfit habitat for the residents who are in a dire need of a localised economy and intense social processes.

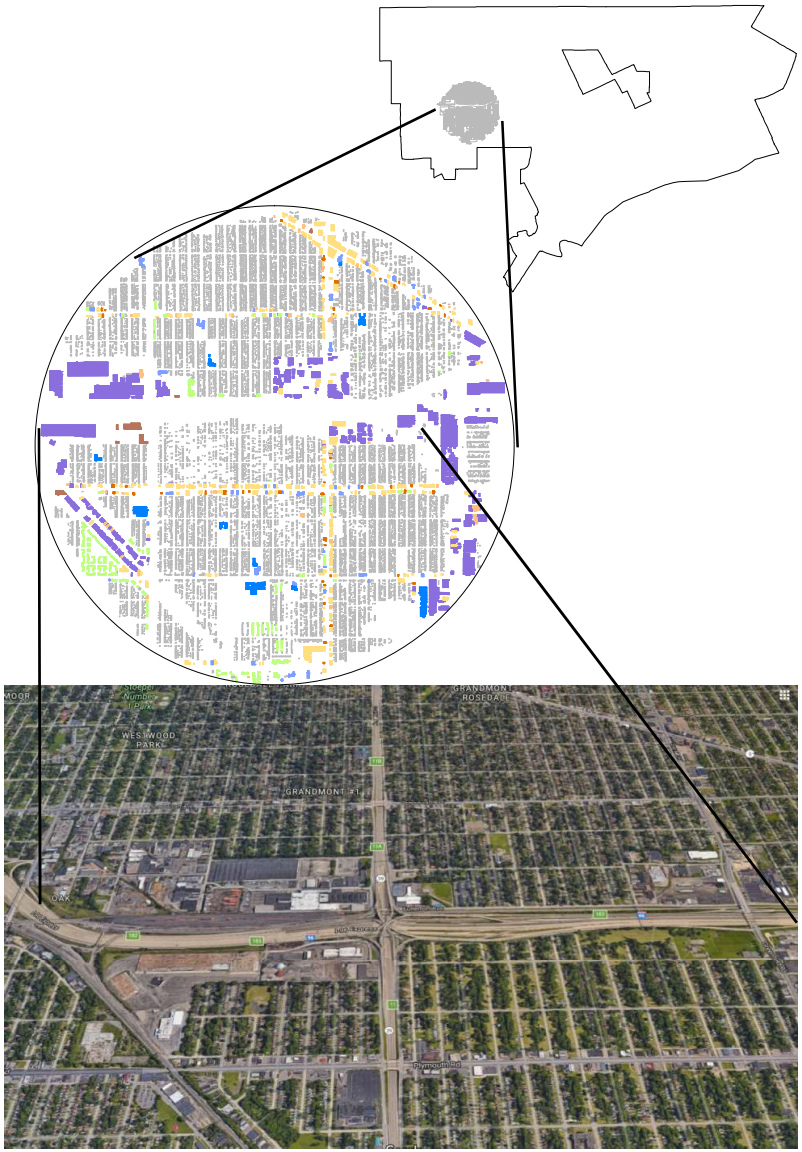


Figure1.5 A strong neighbourhood and a high vacancy neighbourhood divided by an industrial corridor .
Source: Google view, Composition by Author

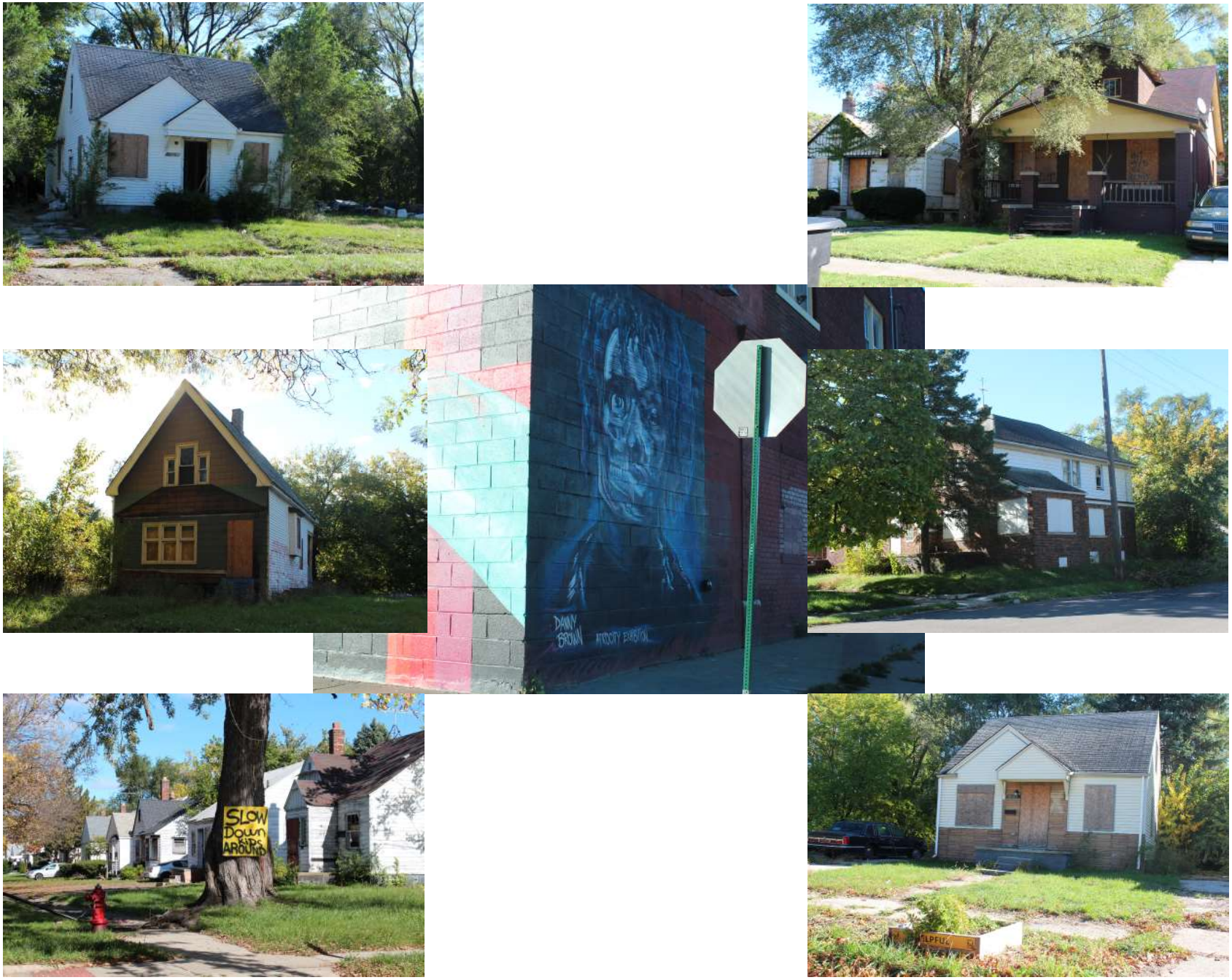


Figure 1.6: Abandoned Structures. Photo Montage by Author

Neighbourhood Incremental Densification:
A New Approach for Detroit

This thesis argues, that in order to fortify its urbanity Detroit needs to consolidate its urban areas in a compact dense form which can support intense localized urbanizing processes. For that it needs a new urban form, one which can recapture a viable density within a walkable grid and generate processes that can support a social-class that is no longer fully auto-enabled.

This thesis attempts to employ complex systems thinking to develop a holistic analytical methodology, to create a phased and animated process of densification from here on referred to as Incremental Densification. Once the system actors and attractors are identified and their ensuing processes are understood within the current context, its processes and propensities shall be analysed so as to develop a set of possibilities for an emergent, more convivial transformation.

Since Detroit neighborhoods do not and cannot have the interest of developers, possibility for neighbourhood densification in a sustainable manner is premised on incremental re-location of the residents to the stronger parts of the city's neighborhoods. Vacant and dangerous structures in weak areas, seen in Figure 1.4, 1.6 and 1.7, are to be deconstructed and materials recycled to be cost effective. The thesis will investigate spatial relationships between consolidated neighbourhoods and future generative landscaped areas to intensify the urban processes, needed for Icremental Densification.

In order to make the neighborhood revival process sustainable, the process has to become flexible so as to adapt to variable conditions that may prevail. The thesis will propose phased iterations, which when adopted over time could create a dense and process oriented city maintaining continually benificial self-organization of the system.

- Successful unslumming means that enough people must have an attachment to the slum that they wish to stay, and it also means that it must be practical for them to stay. Impracticality is the rock on which many an unslumming slum is wrecked. Impracticality has mostly to do with unavailability of money for improvements, for new buildings, and for commercial enterprises at a time when these needs become urgent and their discouragement crucial.[11]-

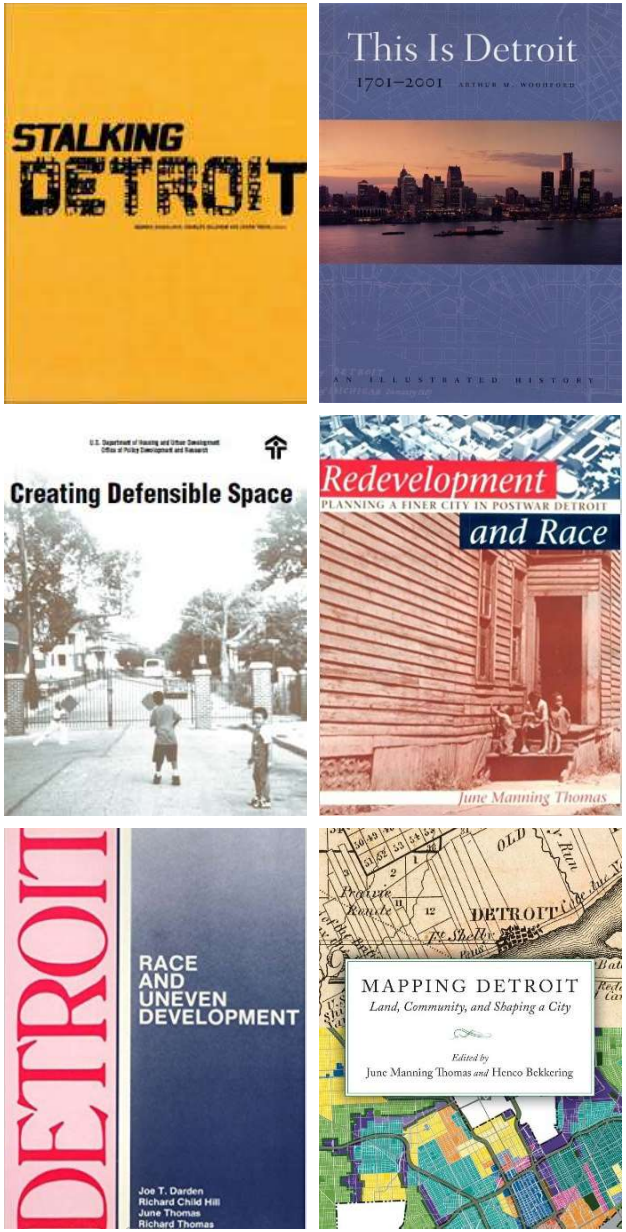
Jane Jacobs (1961). Pg. 287

Figure 1.7: Structurally Damaged Structures. Photo Montage by Author

1.2 Theoretical Analysis

The basis for this thesis begins with an analysis of the historical and current context of urban variability. Various literary sources inform the initial research of this urban condition at a global level, and is informed by readings from *"Shrinking Cities, Volume 1: International Research"* edited by Philip Oswalt and *"Shrinking Cities, Volume 111: Detroit"*, edited by Doreen Mende and Philip Oswalt. Detailed historical accounts by Silas Farmer and Co., in *"The History of Detroit and Michigan or The Metropolis Illustrated: A Chronological Cyclopedia of The Past and Present"*, and by *"This is Detroit 1701 – 2001"* by Arthur M. Woodford, provide deep historical accounts of the making of Detroit's historic context. During this period, Detroit's unique socio-political conditions and the role of racial prejudice are substantiated by literary sources such as *"The Origins of The Urban Crisis"* by Thomas J. Sugrue. In her book, *"Redevelopment and Race – Planning a Finer City in Postwar Detroit"* June Manning Thomas provides a detailed account of the impact of racial prejudice on post-war planning processes, the change in racial composition during these post-war planning period are highlighted through maps provided by Joe T. Darden in his book *"Detroit: Race and Uneven Development"*. Detroit's current prevailing context of declining urbanism is informed through several articles by John Gallagher, from Detroit Free Press, Jerry Herron from The Detroit News and a design project *"Decamping Detroit"* by Charles Waldheim and Marili Santos-Munné, presented in the book, *"Stalking Detroit"*.

The theoretical basis of neighbourhood urban models and their social frameworks are guided by *"The Death and Life of Great American Cities"* authored by urban theorist and activist Jane Jacobs. *"A Theory of Good City Form"* by Kevin Lynch provides design criteria that link human values to good city design. Neighbourhood redevelopment and a comparative review of various building typologies used to revive American rust-belt cities is informed by Brent D. Ryan in his book *"Design after Decline – How America Rebuilds Shrinking Cities"*.



The analytical and conceptual framework is supported by complex systems thinking. It is informed through *"Understanding the Complexities of Economic, Ecological and Social Systems"* by Dr. Crawford Stanley Holling, and *"An Ecosystem Approach for Sustainability: Addressing the Challenge of Complexity"* explaining the Self-organizing Holarchic Open (SOHO) Systems by James J Kay et al, These readings support the formulation of key design goals and objectives through appraisal of controlling processes and hierarchical processes identified through historic literature mentioned above.

The design approach for urban intensification and its implementation approach at various scales is guided by *"A Pattern Language – Towns-Buildings-Construction"* by Christopher Alexander et al. Insights from *"Creating Defensible Spaces"*, by Oscar Newman provide an approach for designing safe and controllable public spaces. Lastly, the explanations within *"The Flexible City Sustainable Solutions for a Europe in Transition"*, by Tom Bergevoet and Maarten van Tuijl, shall enlighten the approach to create a flexible plan, which can guide future transformation possibilities achieved through informing the involved stakeholders in a participatory governance structure.

Figure 1.8: Book Covers.
Photo Montage by Author

1.3 Thesis Structure

Chapter two, “Detroit’s Expansion and Contraction”, begins with an analysis of shrinking cities viewed from a global perspective. Various documented causes for shrinking urbanism are presented, which lead into the analysis of the multi-faceted processes unique to a shrinking city. The evolution of Detroit’s spatial system is informed by historic accounts of various events shaping Detroit, its underlying conditions for a rapid growth, and later, the factors responsible for its demise and depopulation. The chapter further explores Detroit’s context at the tri-county and city scale to reveal the impact of past planning strategies and their impact in the making of Detroit’s current context so as to identify the key controlling processes. The historic context of Detroit is chronologically divided as follows: The Frontier Community: Rivers and Trails, The Town: 1806 till 1903, The Motor City: 1904 till 1952, and lastly, The Mobile City: 1953 till present.

Chapter three, “Pennies on the Dollar” presents Detroit’s current municipal challenges in contemporary context and the actions to stabilize the city by the authorities and major corporate players.

Chapter four “Recalibrating Detroit”, presents cultural constraints. It will review key cultural deterrents that are impacting the controlling processes. Most recent data and literature will be presented to explain cultural and spatial constraints and how they form a barrier to achieve a sustainable urban environment.

Chapter five, “Design Proposal”, will provide detailed interpretations of the leading theories that inform and define most appropriate sustainable neighbourhood design goals. The design proposal will continue to visualize and graphically explore the implication of proposed paradigm at Street Neighborhoods, Neighbourhood Districts and at a City scale. Thesis outcome will be rooted in addressing the question of how to deliver and improve ‘quality of urban life’ within an existing neighbourhood built form? The narrative is guided by a review of urban hierarchies and their impact on social processes that are much fiercely debated by Jane Jacobs in her book, “The Death and Life of Great American Cities”. Forming an urban paradigm bring an agency when viewed through Jacobs’s debate on urban form and its impact

Figure 1.9 Map of CBD relative to Osborn Neighborhood.
Drawn by Author.
Source Base Map: Southeast Michigan Council of Governments,
https://maps-semcog.opendata.arcgis.com/

of social behaviours in terms of how Detroit can reinvent its current physical context. Jacobs critique further leads the discussion into analysis of the physical design of neighbourhood unit, proposed by Christopher Alexander, Clarence Perry and analyzed through functional theories postulated by Kevin Lynch.

This thesis shall further debate practical implementation of the learning outcomes from the theoretical analysis, while cognisant of the cultural constraints and the physical barriers as realized in chapter three. Proposed design strategies shall guide incremental urban intensification, and analysis of its social impacts. Here, systems thinking further informs and identifies the design goals and objectives by highlighting the controlling and hierarchical processes within neighbourhoods. Once informed about the theoretical basis of design goals, the discussion navigates through the consequence of the new design model. The chapter ends with an analysis of processes within neighbourhood units, using complex systems thinking as a conceptual framework.

Chapter five, “Osborn’, begins with introduction of the Osborn neighborhood profile, its location is identified in Figure 1.9. The Osborn neighbourhood is located in the north-east Detroit and has an urbanity with varying trends of stabllization and abandonment. Bounded by industrial corridors and decaying surroundings, Osborn presents a fine example of variable urbanism typically found within Detroit’s neighborhoods. Here one iteration of the design proposal shall be explored graphically. Various demographic, social and spatial relationships within Osborn neighborhood shall be visualized. It will propose a series of design strategies, which are phased over time for incremental densification. Current zoning policies and its impact on social, economic and political aspects of Osborn will be reviewed, as existing context. The design proposal will continue to review the possibility of a participatory governance model that is flexible in order respond to variable trends.

Chapter six, “Conclusion”, will attempt to answer critical questions concerning evaluation of the proposed urban paradigm, what components and processes can possibly threaten or promote desired goals, what measures can be taken to preserve the intent of the designed system? How can threats be identified and mitigated or eliminated in the foreseeable future? Lastly, since the systems thinking embraces the notions of surprise, variability and in-determinability, how can the city govern itself in an adaptive yet anticipatory manner?

Chapter 1 Endnotes

1 Bedard, Joshua Oliver Peter, Detroit: *Mapping a New Narrative.* (University of Waterloo Masters Thesis, 2009), Pg. 5

2 Herron, Jerry, *Borderland/Borderama/Detroit: Part 1, 2, 3.* (2010). https://placesjournal.org/article/borderama-detroit-1/

3 Rowe, Colin, P*rogram vs. Paradigm*, Cornell Journal of Architecture. mit.edu (1983). http://web.mit.edu/4.163J/BOSTON%20SP%202011%20STUDIO/Urban%20Design%20Docs/03.%20Urban%20Design%20Reader/Rowe%20Program%20vs%20Paradigm.compressed.pdf

4 Jacobs, Jane, *The Death and Life of Great American Cities*, Vintage Books New York, (1961) Pg 117

5 Ibid, Pg 150, 151

6 Holling, Crawford Stanely, *Understanding the Complexity of Economic, Ecological, and Social Systems*, Ecosystems, Springer-Verlag, (2001) pg. 391

7 James J. Kay, Henry A. Regier, Michelle Boyle, George Francis, *An ecosystem approach for sustainability: addressing the challenge of complexity,* Pergamon, Futures Vol 31 # 7 (1999) Pg. 722

8 David Waltner-Toews, James Kay and Nina-Marie E. Lister, *The Ecosystem Approach : Complexity, Uncertainty, and Managing for Sustainability* (New York: Columbia University Press, 2008)., ix.

9 Jacobs, Jane, *The Death and Life of Great American Cities*, Vintage Books New York, (1961) Pg 288

10 Herron, Jerry, *Borderland/Borderama/Detroit: Part 1, 2, 3.* (2010). https://placesjournal.org/article/borderama-detroit-1/

11 Jacobs, Jane, *The Death and Life of Great American Cities*, Vintage Books New York, (1961) Pg 287

CHAPTER TWO DETROIT'S EXPANSION AND CONTRACTION

2.1 Urban Shrinkage Globally

Cities are physical expression of social and cultural transformations. The physical attributes of a city play a pivotal role in shaping the future evolution of a society. More than half the global population chose to live in cities at the start of this century, and most cities experienced a growth trend that dominated the attention of planners, experts and press. Trends, both growth and shrinkage, have always been present in urbanism, but never so apparent as the transformations due to the industrial revolution in the late 20th century. Shrinking cities generally refer to dense cities that undergo rapid loss of population at the onset of an adversity, typically through demise of economic attractors like industry. Shrinking urbanism is not exclusive to North America, post-industrial cities within Europe have experienced depopulation trends. Dresden, Berlin, Manchester and Liverpool, and the industrial cities of the former Soviet Union just to name a few shrinking cities shown in Figure 2.1. This phenomenon is also not limited to post-industrial cities; shrinking urbanism have been observed in post-disaster cities such as New Orleans after hurricane Katrina, post-war cities like Hiroshima and Nagasaki. Shifting economies can cause shrinking urban trends, such as in Halle/Leipzig during post-socialist era, and the Sunbelt cities of the American South and South-west after the economic downturn of 2008[1]. What is essential to note is that both trends, growth and shrinkage embody temporality, and its transformative nature can manifest itself into varying outcomes. In the realm of shrinking cities, some ancient cities such as Troy and Mayan cities, can disappear, or like Rome are able to overcome the depopulation trends perhaps even thrive over-time, while others reinvent and transform their urbanity so as to stabilize or thrive with an altered identity.

For most advanced Western and European cities today, urban shrinkage is a new phenomenon since there is no external traumatic cause for population change, such as wars, epidemic or famine. In fact, it's happening when these nations, at large, are experiencing a time of economic prosperity and peace. It is therefore necessary to know the evolution of an individual city in order to design an urban paradigm for its future vitality in a sustainable manner.
The next sections of this chapter will walk te reader through the evolution of Detroit's urban fabric, its geometries and building types, its functions and social history to understand what happened to Detroit and what steps are needed to reverse that slide to urban stagnation.

Figure 2.1 World map with red dots marking the location and size of the shrinking cities 1990 - 2000
Source: Leipzig a shrinking city growing again. https://leipzigshrinkingcity.wordpress.com/white-paper-on-not-giving-up-on-shrinking-cities/

This strait is finer than that of Niagara, being thirty leagues long, and everywhere one league broad, except in the middle which is wider, forming the lake we have named Ste. Claire. The navigation is easy on both sides, the coast being low and even. It runs directly from north to south. The country between these two lakes is very well situated and the soil is very fertile. The banks of the strait are vast meadows, and the prospect is terminated with some hills covered with vineyards, trees bearing good fruits, groves and forests so well disposed that one would think Nature alone could not have made, without help of Art, so charming a prospect. The country is stocked with stags, wild goats, and bears which are good for food, and not fierce as in other countries. Those who shall be so happy as to inhabit that noble country cannot but remember with gratitude those who have discovered the way by venturing to sail upon an unknown lake for above 100 leagues.[2]

— Father Louis Hennepin (1679) (Detroit History n.d.)

2.2 The Frontier Community: The River and The Trails

An original complex system of trails and waterways was integral to the early evolution of Detroit. Native tribes used the trails, located along rivers and streams as part of their tribal migratory routes seen in Figure 2.2. The Detroit River, perhaps the shortest river connecting Lake St. Clair and Lake Erie, forms part of a giant system of lakes linked by rivers which were explored by the European fur traders of the 1600's. Various Colonial Era accounts mention the calm waters and the beauty of the strait of Detroit, its narrow shorelines positioning the land-edge for a perfect cross-over to Canada.

The ancestry of the original inhabitants living in this region is a mystery, its archeologically proven to date as far back as 4000 B.C. The very first nations visiting were hunters looking for the bison, the mastodon, the giant beaver, and other large animals. The hunters were followed by the Copper People who mined the copper from Isle Royale in Lake Superior [3]. The name Michigan, is derived from two Chippewa words – Mitchaw (great) and Sagiegan (Lake) or Great Lake.

Michigan historian Silas Farmer states that the First Nations who travelled here from Central America were the Algonquin, Ottawas, Menominees, Sacs, Foxes, and Chippewas. Other tribes surrounding this region were Miamis, Potowatamies, Winnebagoes and Ouendats or Wyandotts and sometimes Iroquois, the latter settling in 1680's. They were mainly hunters, fishermen and agriculturalists, and were very familiar to the land. In 1714, the Tuscaroras of North Carolina united with Onondagas, Cayugas, Senecas, Oneidas and Mowhaks to form the Six Nations who roamed all Michigan and claimed the Detroit region. This led to warring with the Algonquins who were driven out of the region through the tribal warfare. Algonquins, though early French allies, eventually disliked the French and formed an alliance with the British to fight the French colonialists. The French, later allied with the Six-Nations when Detroit was incorporated.

The waterways and trails of Detroit were crucial to the First Nations movements as well as the later settlers for hunting, fishing, war and trading. The early tribes were searching for sustenance, exploiting and dependent on the biotic attractors, mainly the wild animals and plants. The key abiotic factors were the river and the fertile land, juxtaposed to provide access through the Great Lakes. The trails form Detroit's first spatial system, and eventually the basis of an arterial radial street grid pattern used untill the present time as seen in Figure. 2.4.

In the second growth cycle, we observe the actions of early European visitors through the waterways as early as 1535, when Jacques Cartier travelled along St. Lawrence River and claimed Montreal for France. In 1608 French explorer and priest, Samuel de Champlain founded Quebec and is rumoured to have passed through the Detroit River. Detroit strait has been rumoured to have been visited by the Joliet brothers along with Jean Pere in 1669 when they set out to discover copper mines located on the shores of Lake Superior[4]. Later explorations by Louis Hennepin, a French priest provided the first written narrative of Detroit in 1679.

The French travellers referred to this land as 'lé Detroit', or 'The Straits'. Antoine Laumet de la Mothe Cadillac, a French commander, saw the true worth of this land and had a vision to create more than just a trading outpost, but an actual colony. He wanted to bring farmers and artesians from France for sustenance, and urged the First Nations to build their villages nearby for constant trade supply. He presented his ideas to Luis XIV and was granted an approval.

Antoine Laumet de la Mothe Cadillac reached shores of present day Detroit in 1701, and founded the first settlement intending to be a fur trading post to prevent British influence in this region as depicted in Figure 2.2. Cadillac founded the post, shown in Figure. 2.3, to be a permanent commercial colony and expected full authority over trade. Within the first few years due to a conspiracy, he almost lost control of the garrison he had established. After the trials, a victorious Cadillac gained exclusive trading rights. The exclusive rights only applied to trade of furs, the imported goods, however all the produce generated locally could be traded privately by the company residents[5]. Detroit's original radial trails played a key role in controlling the trade of the hinterland.

Figure 2.2 Antoine de La Mothe Sieur de Cadillac landing on Lake Saint Clair where he founded Fort Detroit 1701, source: Alamy (Photos 2017)

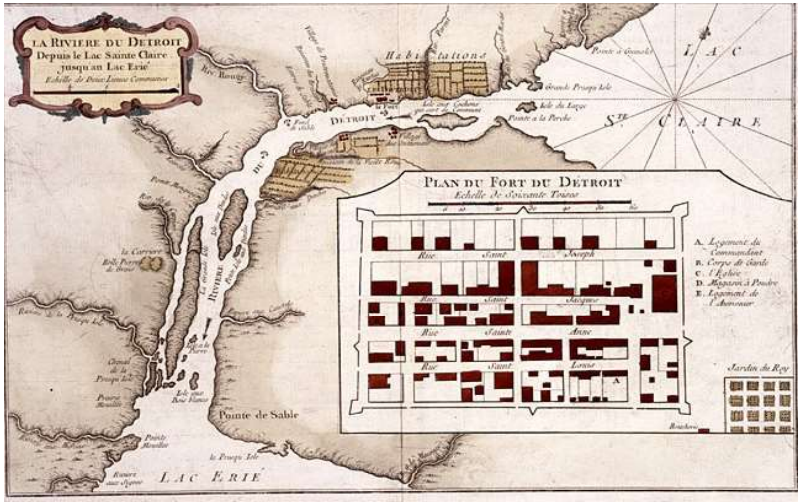


Figure 2.3 Plan Du Fort du Detroit. 1764 . Mapping Detroit - June Manning Thomas Pg. 19

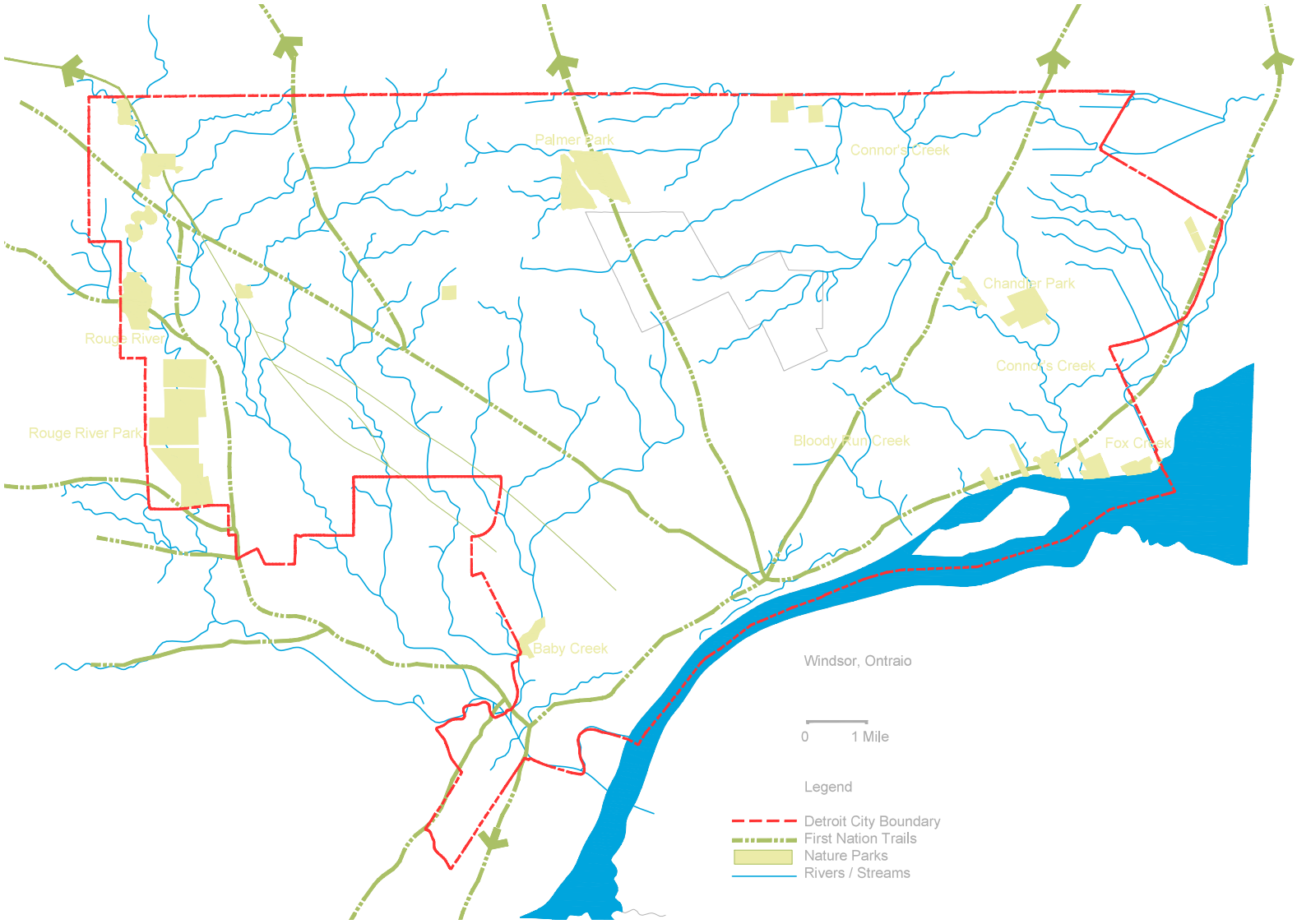


Figure 2.4: Rivers, Creeks and Trail System, Drawn by Author.
Source: Rivers -, June Manning Thomas, *"Mapping Detroit Land, Community, and Shaping a City"*(2015).
Source Trails - Archaeological atlas of Michigan [by] Wilbert B. Hinsdale- https://quod.lib.umich.edu/g/genpub/1265156.0001.001/59

According to Silas Farmer, there were several export items but Detroit's main interest remained in fur trading, seen in Figure 2.5. This was the beginning of international globalized commercial activity, and with that, the growth of the settlement. Agricultural and local goods boomed because the residents were free to trade goods locally. The town continued to develop along the shores since it was heavily reliant on the waterways for transportation of goods and people. The unique grid pattern along the river edge since the annexation of this land during colonial period is still evident in what's called the 'French Grid', or the 'French Ribbon Grid'. It basically depicts a close succession of long streets, lined perpendicular to the shoreline seen in Figure: 2.6. The overlay shows the French ribbon grid, with street grids to the north that were formed much later through the years.

The ancient trails themselves were eventually developed into a more regular European style plan of an arterial radial street network of six streets. Jefferson Avenue runs east and west and lies along the south river shoreline. The radial streets starting from eastward are, Gratiot Avenue, Woodward Avenue running north-south, and to the west is Grand River Avenue and the Michigan Avenue.

- In August, 1784, after great quantities had been sent away, there were still one thousand packs of furs at Detroit. During all these years the business of buying and shipping furs was the most important factor in the trade of Detroit. A single shipment on August 6, 1821, of four hundred and ten packs, was valued at $62,000; and during the year over §300,000 worth were shipped from the city. In 1829 furs to the amount of S325.000 were exported, and the shipments of raw furs to Europe, even now, reaches a value of half a million yearly.[6] -

SilasFarmer (1884)

Figure 2.5: Thirty foot fur canoes made of Birchbark could carry four tone load.
Source, 'This is Detroit' Arthur M Woodford. (2001) Pg. 17

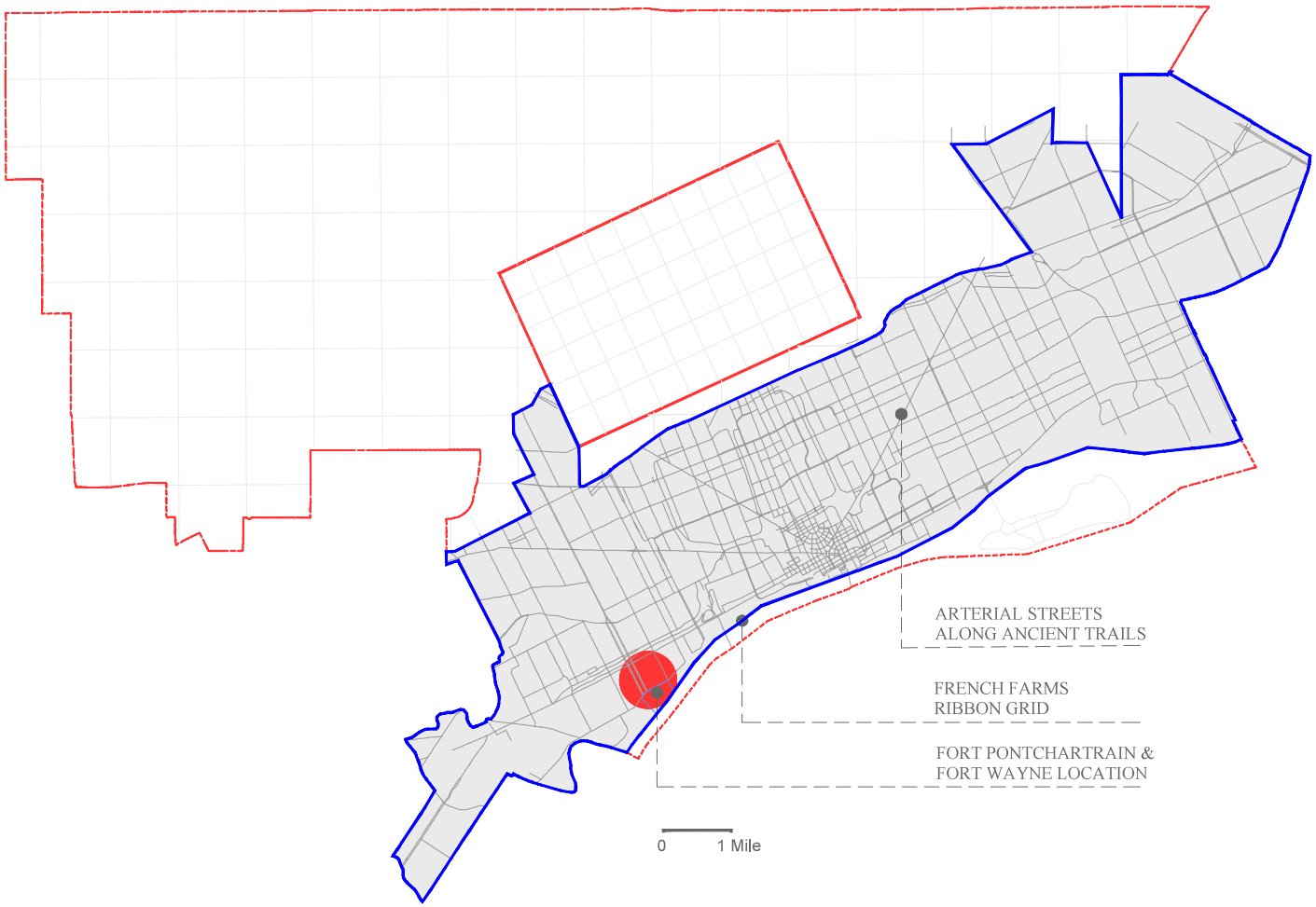


Figure 2.6 The French Ribbon Grid., amalgamated with the early trails network.
Drawn by Author

After the Seven Year War (1754 to 1761) between the French and the British, the British took over Detroit. This lasted fifteen years before the advent of the American Revolution. Following the British defeat, in 1796, after fierce negotiations the British surrendered Detroit to the new American government to preserve the Great Lakes, which from here onward acted as the boundary between the British and the new American nation.

A massive fire that started on June 11, 1805 burnt down Detroit. Most of the wooden houses were destroyed, shown in Figure 2.7. A bucket brigade was created to fight the fire however within three hours all the houses went up in flames. Father Gabriel Richard, a priest who had been here since 1798 was among the relief workers. While providing food and clothing to the homeless, he was heard to say: “Speramus meliora; resurget cineribus”: meaning, “We hope for better things; it will rise from the ashes”, these words are now part of City of Detroit’s official seal and motto to the current day.

Governor Hull arrived on June 30th and sought to rebuild Detroit while expanding it to East. Judge Augustus Woodward suggested the famous wheel and spoke plan with widened radial streets and hexagon centers (fig 2.8). New houses were built as single houses, no row houses were built. By now, several families consisted of French and British unions. Few British merchants refused to leave and stayed back in Detroit. For the next decade the population grew steadily. When Michigan was announced to be a Territory, Detroit was named as its capital in 1805. (Woodford 2001).

Detroit’s First Nations, however, were increasingly getting dissatisfied with the Americans occupation of their hunting lands and trade deals, and thereby sought alliances with the British. The British traders, rumoured to be agents, were supplying weapons to the first nations to form militia and strengthening them against Americans. War broke out in 1812. The American forces invaded Upper Canada and were beaten back. General Isaac Brock of Upper Canada pursued the American Governor Hull to Detroit. When Brock started firing cannons at the city, Governor Hull decided to surrender.

Figure.2.7 The Fortified Town that burned down in June 1805, shows the early settlement with ‘ribbon grid’ streets perpendicular to river edge.
Source: Mapping Detroit - June Manning Thomas Pg. 23

Figure 2.8 Augustus Woodward’s plan for rebuilding the city following 1805 fire
Source: Mapping Detroit - June Manning Thomas Pg. 38

Figure 2.9 The Steamboat Hotel, first hotel in Detroit in early 1800's.
Source: Silas and Farmer (Farmer 1884)

Figure 2.10 Walk in the Water Steamboat
Source: The Detroit News

2.3 The Town: 1815 untill the establishment of the Henry Ford Motor Co. in 1903

The three years following the surrender of Detroit was marked with conflicts between American and Canadian armies across Canada and the United States. During this time, trade and farms suffered greatly, giving rise to hunger and poverty. In December 1814, the Treaty of Ghent ended the war. This historic moment was celebrated at Ben Woodworth's Steamboat Hotel, as seen in Figure 2.9. At this event in the city several British were invited to pacify any hard feelings[7].

Detroit lost its attractive reputation for new settlers soon after the creation of Michigan Territory. This was partly due to surveyors reports citing Detroit as a 'swamp', and partly due to its difficult land access. Territory Governor Lewis Cass, realizing this situation was stunting Detroit's growth, wrote optimistic letters to his acquaintances highlighting Michigan's marvels and promoting tourism so as to improve its image. The concern of land inaccessibility ended with the development of more efficient steamboat travel to Detroit via Buffalo. A 135 foot side-wheeler named Walk-in-the-Water marked its virgin sail from Buffalo to Detroit in August 1818, shown in Figure 2.10. Cass also acquired land from First Nations by signing a treaty. The federal land office used the land to incentivise immigration by setting a low selling rate for newcomers. Soon new settlers queued outside the Land office at Jefferson Avenue.

The third event, the opening of Erie Canal in late 1825 set Detroit back on its path to growth. The Canal connecting the Great Lakes to the Atlantic coast gave the would-be settlers from New England and New York fast access to Detroit. Exporting processes began to expand since Detroit farmers had a variety of produce while Detroit fisheries had begun to expand into commercial fishing and export of salted fish[8].

At that point the city had outgrown the French ribbon grid area. With that land used, a ten thousand acre tract to the North of the existing town was surveyed in 1826 and added to the town. This tract of land was known as the British grid seen in Figure 2.11.

Expansion of the city within the new ten-thousand acre land provided growth opportunity by housing the large influx of European migrants. The street grid for the newly acquired tract was aligned along the north edge of the French-ribbon grid. Figure 2.12 shows the interior streets continue along the base of the streets within French grid. One of the streets formed along the native trails, is the Woodward Avenue which runs almost mid center of the British grid, bisecting it in the north-south axis. The individual half-mile squares of the grid are still recognizable. Each square is bounding an area of one acre, resulting in pedestrian friendly street division calibrated to a five-minute walk radius of quarter mile to most commercial activities, which were lined along main gridlines observed in Fig. 2.11.

As result of these three improvements, the immigration levels were raised to a new record high and population grew from 2,222 in 1830 to 9,102 in 1840 [9]. This brought diversity of skills and new actors. With the influx of residents the local market boomed with product demands from household goods to fresh produce.

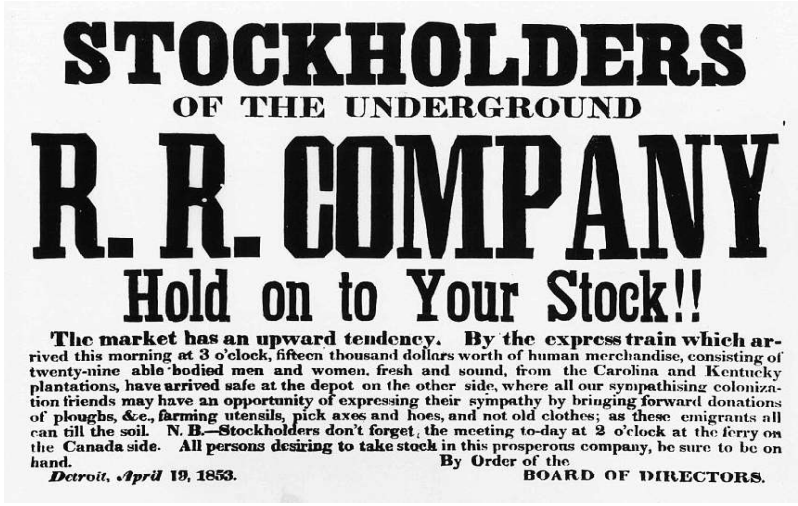
Figure 2.11 Survey map detail showing Ten Thousand Acre Grid. Map drawn by Risdon, 1825, for Territory of Michigan. Source: Mapping Detroit by June Manning. (Thomas, Mapping Detroit Land, Community, & Shaping a City 2015)

Figure 2.12 Relationship of the British Ten-Thousand Acre Grid to the French Ribbon Grid.
Drawn by Author

There was a need for schools in the expanding town and in 1842, new laws were passed to levy taxes and created a city-wide public school board. The town soon had newspaper publication, The Detroit Gazette started in 1817, followed by several other newspapers. Among those most successful was Detroit Free Press which began publishing on May 5th, 1831, it's building seen in Figure 2.13. The wealth of the land provided the required resources for Detroit to continue its rapid growth, soon developing into a bustling city with several civic, public and private institutions.

Detroit's unique positioning across the river from Canada made it an important Underground Railroad station, responsible for freedom flight of those who escaped slavery from the Southern United States (fig. 2.14) and created the racial conditions that bedevil the city today in its shrinkage. This location was to have a long term effect on Detroit's social milieu. In the 1840's a reformist movement from New York gained strength to fight for abolition of slavery. This civil war ended slavery via ratification to the Fifteenth Amendment to the U.S. Constitution on April 17th, 1870. Racial differences within job markets started to escalate and in 1863 a race riot erupted between unskilled Irish and German immigrants and the black laborers over service and unskilled jobs. Thus began the cycle of Detroit's race related tensions[10].

Figure 2.13 The Free Press Building, N.E. Corner Lerned and Shelby St.
Source: Silas Farmer, p 687



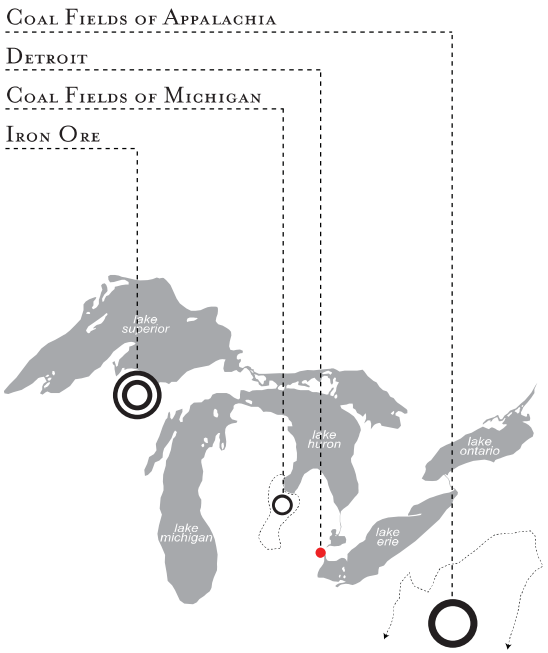
STOCKHOLDERS
OF THE UNDERGROUND
R. R. COMPANY
Hold on to Your Stock!!

The market has an upward tendency. By the express train which arrived this morning at 3 o'clock, fifteen thousand dollars worth of human merchandise, consisting of twenty-nine able bodied men and women, fresh and sound, from the Carolina and Kentucky plantations, have arrived safe at the depot on the other side, where all our sympathising colonization friends may have an opportunity of expressing their sympathy by bringing forward donations of ploughs, &c., farming utensils, pick axes and hoes, and not old clothes; as these emigrants all can till the soil. N. B.—Stockholders don't forget, the meeting to-day at 2 o'clock at the ferry on the Canada side. All persons desiring to take stock in this prosperous company, be sure to be on hand.

By Order of the
BOARD OF DIRECTORS.

Detroit, April 19, 1853.

Figure 2.14 Facsimile of a handbill showing spirit of those aiding the freedom seekers, 1850's
Source: Silas Farmer (Farmer 1884)



Around the 1840's, the discovery of copper within Michigan's Upper Peninsula, by Douglass Houghton brought revolutionary potential to the city's commercial processes. Resource locations mapped in Figure 2.15. Although copper was known to early settlers, till now its extraction and refining was not done on a commercial basis. As the manufacturing in Detroit was gaining technological advances, the discovery of mass production of metals gave Detroit the much needed boost in meeting the production demands for building the steamships, as the one seen in Figure 2.16, and logging engines needed for exploiting the resources for the American west. Substantial amounts of iron ore were also discovered and when the new canal at Sault Ste Marie was finished in 1855, rapid transportation of metals brought raw metals to Detroit through the lakes. Detroit was now at a new position, it had the manpower, the material resources and the demand to produce not just the heavy machinery but also several other industrial products and household items, paints, varnish, soaps and shoes, to name just a few.

Figure 2.15: (Top Left)
Map of Great Lakes Region showing Detroit's central location on isthmus between the iron ore fields of northern Michigan and the coal fields of Appalachia.. Source: Joshua Bedard, *Detroit: Mapping a New Narrative.,* University of Waterloo Masters Thesis (2009).

Figure 2.16 (bottom Left)
View of Detroit from Canada 1838, by John Stobart shows Detroit-to-Cleveland packet "Sheldon Thompson, passing downstream, Detroit industries in background. Source: Arthur M. Woodford, *This is Detroit (*2001)

The demand for heavy machinery was critical, mainly due to the fact that Detroit was not part of a railroad network. All civic and industrial locomotives had to be produced and operated locally. Work started on laying down networked railway lines from the 1840's to the1870's. The American and Canadian business community was eager to establish closer connections. By 1854 the Great Western Railroad linked lower Ontario peninsula at Windsor, whereas using the Michigan Central line, a traveller could now go from Chicago to Niagara River. During these days rail cars, wheels and axels and later steel stoves and pharmaceuticals were produced in Detroit, the early industries seen in Figure 2.17.

In 1853 a State legislature created Detroit Board of Water Commissioners, which undertook construction of new reservoir and pumping stations to meet the water demands of expanding city. By 1882 electrical street lighting was provided by Brush Electric Light Company. Electrical power for residential use began in 1893. Later Brush was taken over by the Detroit Edison after it was incorporated in 1903. Telegraph services were established in 1878. By 1890, Detroit was already transformed from a small town to a small city with a population of 205,876.

Unbeknownst to it then, the small commercial town of Detroit was about to take on its new identity, as 'The Motor City'. According to historical accounts by Arthur M. Woodford, and Silas Farmer this period in history was marked by the transformations of governance structure of the land. Formation of new laws seeking migrant population to the land and development of technological processes further enhanced feedback to the migration and settlement processes. Busy streets seen in Figure 2.18. Finally, the capacity of settlers to find resources and make machines and appliances that provided life-comforts to local residents expanded as international commercial exports. Detroit was now ready for the next wave of expansion.

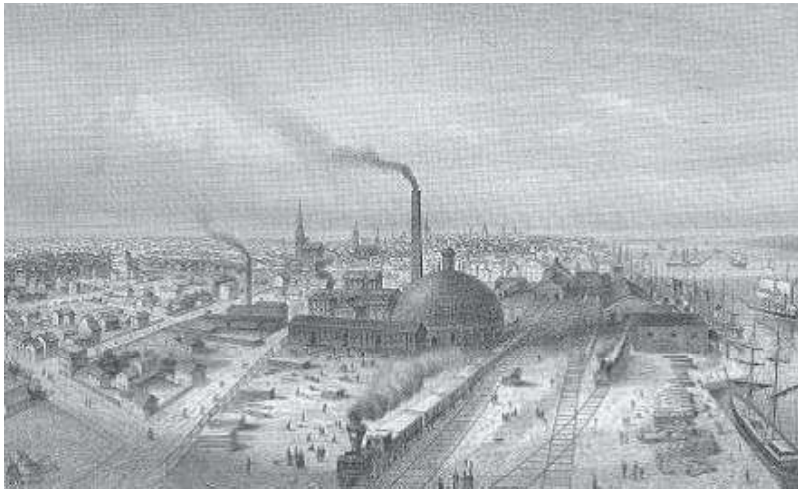


Figure 2.17 Engraving of Michigan Central Railroad, started 1837.
Source: This is Detroit – 1701 – 2001, p 73.

Figure 2.18 S.S. Kresge (later K-Mart) first store at Woodward St.
Source: This is Detroit – 1701 – 2001, p 84

Figure 2.19 S.S. Grand International Exposition held at Delray in Detroit. 1889 - 1892
Source: This is Detroit – 1701 – 2001, p 88

Figure 2.20 First Horseless Carriage by Charles B. King, seated along with his assistant. 1896 Source: This is Detroit – 1701 – 2001, p 89

2.4 The Motor City
1904 till city peak population in 1952

The growth of Motor City Detroit created the physical and social city that is at the heart of today's crisis of shrinking Detroit. Before that Detroit was a more generic Great Lakes city, like Chicago or Toronto. That was to change for the good, and then, the very bad.

Pre-automotive Detroit was showcased to the world during the Grand International Exposition held at Delray neighborhood in Detroit as seen in Figure 2.19. The proximity to raw materials, the presence of skilled labour and presence of an industrial culture was the perfect setting for the next growth cycle featuring the nascent automotive industry. By 1896, the technological awareness was elevated and a number of bright individuals were engrossed with engineering experimentation. One such was focused on creating a horseless carriage. Interestingly both Charles B. King, as seen in Figure 2.20, and Henry Ford created their first functional prototypes in Detroit, literally months apart from each other. Surprisingly neither one of them was the first to put their prototype into market as a tradable commodity. That line was crossed in 1899 by Ransom E. Olds, who opened the first automobile plant in Detroit. The first Oldsmobile sold for $ 2,382, a price tag that price tag would render cars as an exclusive commodity for the affluent. Later a fire completely devastated the Olds plant in 1901. It destroyed the production machines, the plans and dies. One prototype with a curved dash survived. After this event Olds decided to take his manufacturing to Lansing.

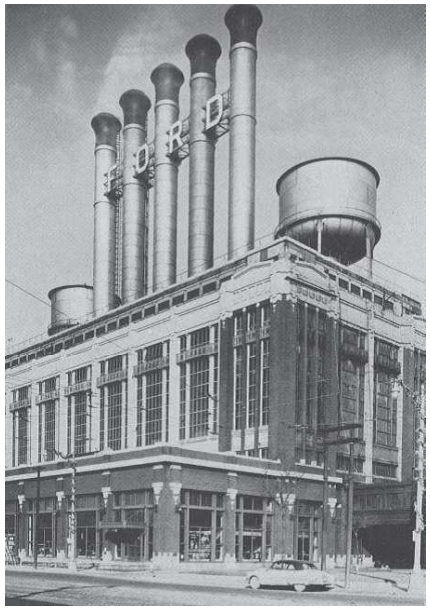
Olds created the Lansing auto plant, however, mainly to assemble parts that were still machined in Detroit. Horace and John Dodge supplied transmissions to the Olds factory. Auto bodies were supplied by a young man from Ohio, named Fisher. The out-sourcing of production led to cost reductions, bringing down the overall Oldsmobile price to $625 making it very affordable. During these years of Olds manufacturing, Henry Ford continued to work on improving the speed of his cars introducing his very first prototype named 'Quadricycle'.

The Ford motor Company, incorporated on June 16, 1903 in Detroit, with a vision to produce an affordable vehicle, mass-produced for the farmers and city residents alike. The automobile construction was simple, so as to be repaired and maintained by its owners. This idea opened up the auto industry to a much larger potential market, and Ford started production of his famous Model-T cars in 1908 at his auto manufacturing plant located in the city, on Piquette and Beaubien Avenue.

Due to the popularity of the Model-T, Ford had to increase production. In 1910, production was moved to a larger manufacturing plant located at Woodward Avenue at the City of Highland Park, a separate municipality set in the centre of the city of Detroit and indistinguishable physically. This City is still one of the key perverse situations which shape Detroit's urban fabric. Figure 2.21 shows the Ford Highland Park Plant. Three years later, Ford revolutionized the auto manufacturing process by streamlining the workflow, using assembly line method and announcing $5-a-day pay for workers. The workers now had to be trained to perform only one task, the parts required to do the tasks reached them just as they required them. The application of Taylorized principles improved the Model-T production from 7.5 cars per hour in 1908 to an incredible 146 cars per hour in 1903[11], as seen in Figure 2.22.

There were other contenders to the crown of automobile manufacturing. In 1902, an industrialist Henry M Leland, along with his associates, launched their first Cadillac cars. After losing their first plant to a fire, the Cadillac Motor Car Company relocated to their new facility, built out of concrete, at Cass and Amsterdam street. The Dodge brothers left Ford and started manufacturing their own line of cars in 1914 from their Hamtramck facility. After the death of both brothers the company was bought out by Walter Chrysler and, by 1925, Dodge became a division of the Chrysler Corporation.

The automobile manufacturing gave rise to larger host of manufacturing and accessories industries. By 1917 Detroit had twenty-three companies manufacturing automobiles, a hundred and thirty-two firms manufacturing parts, together employing 93,000 and 44,000 workers, respectively.[12]



Right: Figure 2.21 Ford Highland Park Plant, first to use assembly line making Model-T paying $5 a day.
Source: This is Detroit – 1701 – 2001, p 92

Bottom: Figure 2.22 Ford Highland Park Plant, Concrete building with assembly line process.
Designed by Albert Kahn Associates, Detroit, Michigan, 1909 – 17
Source: The Skyscraper Museum, (Willis 1997)

Industrial processes shifted away radically from the original lumber industry, a resource now getting scarce, over to the now rising mining, shipping and automobile industries and creating along with this a diversity in the skilled labour and market demand.[13]

The production and improved speeds of automobiles now demanded better roads in America. The Wayne County Road Commission laid world's first concrete paved highway on Woodward Avenue in 1909, traffic lights were installed on it in 1923 along with police patrol to control the traffic, another historic mark for Detroit.

Although the commercial processes were dominated by the automotive industry, Detroit still had modest gains from light manufacturing industries producing furnaces, paints, stoves, pharmaceuticals, marine equipment and tobacco. The Burroughs Adding Machine Company, salt mining, steel production and chemical industries created new jobs, and by 1903 Detroit Board of Commerce was organised to coordinate the business.

World War and Arsenal of Democracy

The United States decision to join the war against in 1917 Germany came three years after Canada's involvement in World War 1 which was in 1914. Following the war declaration, several Detroit regiments, Michigan National Guard and volunteers served in the armed forces, roughly 65,000 men and women. To guard the home-front, Michigan State Constabulary was created, structured same as the Royal Mounted Police of Canada, a forerunner to Michigan State Police as seen in Figure 2.23. During World War 1, the authorities within Detroit and Canada were aware of imminent threats from German sabotage and spy rings giving rise to nationalist tensions.

The automobile industry played a big part during the two World Wars, by producing a variety of military equipment and from 1917 onwards a range of items, guns, ammunition, helmets to trucks, ambulances and staff cars were produced in Detroit shown in Figure 2.24. Ford industries alone had diversified to produce planes, aircraft engines, and boats, as seen in Figure 2.25. Henry Ford setup the first civilian airport near Dearborn on Oakwood, just south of Michigan Avenue, giving a new surge to the aviation. From here Ford operated the world's first air freight service.[14]

World War II began nearly Twenty years after the World War I ended. The attack on Pearl Harbor launched USA into World War II, and during this war United States earned the title "Arsenal of Democracy" attributed mainly to Detroit.[15] Once again, Detroit produced military equipment such as navy guns, tanks and B-24 Liberator bombers. The home front security was on high, men and women were trained and the city buildings, bridges and parks were fitted to thwart off and defend itself in case of an air-raid. An attack on industries producing war materials was a real threat, therefore, during this time, several auto industries including Ford, relocated outside city boundaries to undeveloped and low-cost land, setting the stage for the collaps of the city decades later.

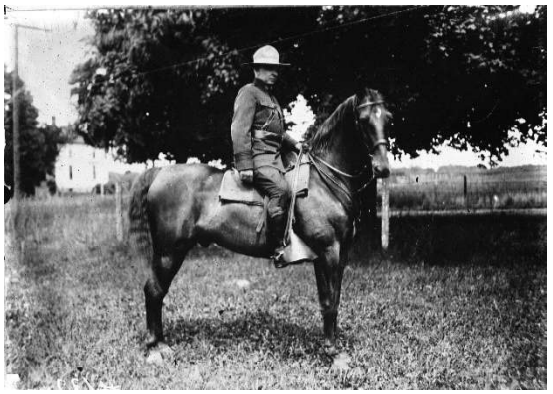


Figure 2.23 Col Roy C. Vandercook, the first commanding officer of Michigan State Troops. Source: Michigan State Police Museum History of the Michigan State Police (2016)

Figure 2.24 Ambulances, ready to be shipped. Parked outside Dodge Plant Source: *Detroit Metro Times*. 30 photos of Detroit's 'Arsenal of Democracy' (2014)

Figure 2.25 Workers around last B-24 Bomber out of Ford Willow Run plant. Source: *Detroit Metro Times*. 30 photos of Detroit's 'Arsenal of Democracy' (2014)

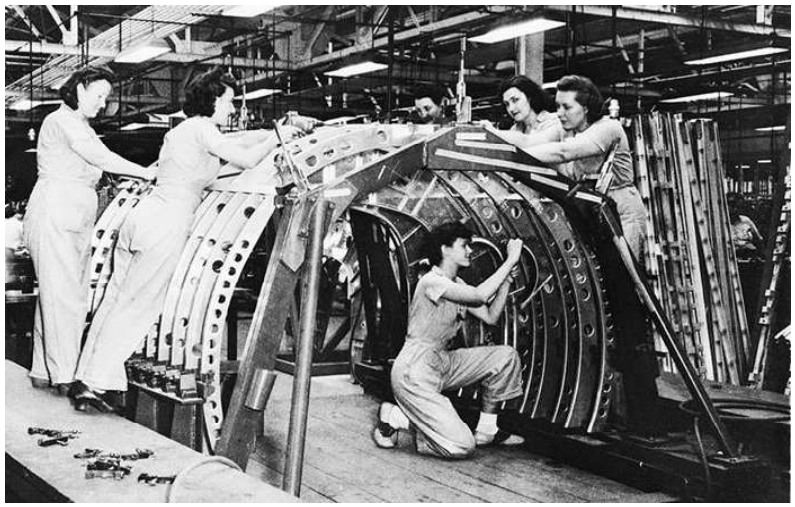


Figure 2.26 Martin B-26 Marauder Bomber built by women at Hudson. Source: *Detroit Metro Times* (30 photos of Detroit's 'Arsenal of Democracy' 2014)

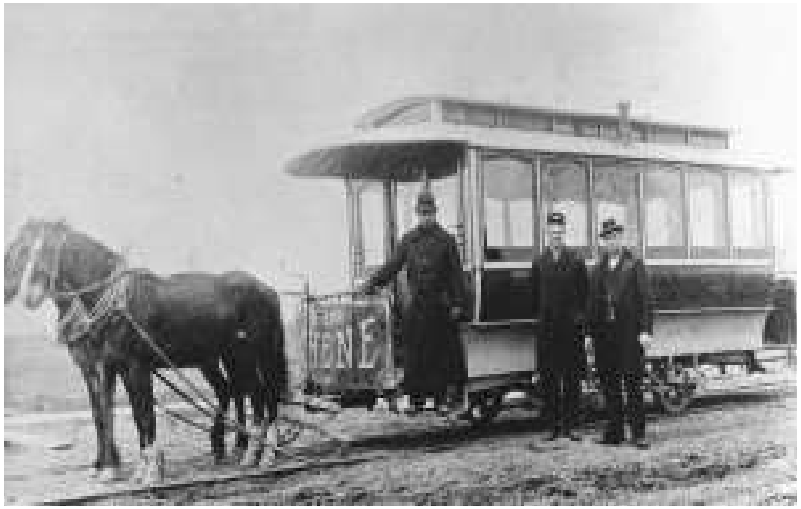


Figure 2.27 Horse drawn Railcars till 1860 Source: Detroit Transit History (Detroit Transit History.info 2006)

During the war, shortage of labour and heavy demand of workforce was supplemented by hiring women at the production jobs as seen in Figure 2.26. The cultural trends shifted as more women were now trained and added to the skilled workforce. For the first time women were seen wearing slacks and regarded as labor force. After the war a number of these women stayed employed.

Despite the growth in automobile demand, and production increase, fewer manufacturers were able to survive the shift in market and technological changes. The 'Big Three', Ford, General Motors and Chrysler along with Hudson, Packard, Hupp and Graham-Paige survived the strenuous finance and marketing demands. As a solution, companies found it easier to de-centralise and move production to cheaper lands situated closer to consumer markets. Gradually production moved out of the city of Detroit proper while the corporate offices remained in the city's central core.[16]

Prior to automobiles, the mass transit mechanism involved horse drawn streetcars later replaced by electric street cars as seen in Figure 2.27 and 2.28. City transit networks were serviced by streetcars until now by municipal Department of Street Railways (DSR) which by 1956 added the Detroit Motorbus Company services under municipal governance. The automotive firms of Detroit engineered the replacements of streetcars across America with the new motor buses manufactured in the city.

The city reached its maximum population in this period. Housing shortages started during this time and spurred racial tensions between black middle-class families drawn north from the racist American South, to seek jobs in Detroit during the war and white neighbourhoods.[17]

The shortage of housing in early 1940's with crowded and segregated neighbourhoods was a breeding ground for much racial resentment. In the case of famous Dr. Ossian Sweet murder trial, middle-class black community was united to fight and eliminate the restrictions against black residents from buying houses within middle-class white neighbourhoods. It set the scene for a racial reformation and involvement of the National Association for the Advancement of Coloured People (NAACP).[18] One of the positive outcomes was appointing of an interracial committee by the Mayor John Smith. The committee was responsible to help black community with their housing and job situation, hailed as a breakthrough for black community.

The Sojourner Truth Project, a public housing building, located in a mainly Polish neighbourhood became contested as white neighbours openly opposed moving in of black residents. This was the first case of massive display of racial polarity as seen in Figure 2.29. The government was not apt at dealing with this situation. On the day of building occupancy, black residents had to be moved in protection of military escort. Although the white residents accepted this move, this defeat built major resentment. Brewing anger was displayed daily through racial quarrels in busses, public places to factory floors, ultimately resulting in eruption of a race riot of 1943. The riot started with white labour resisting the gathering of black workers at a factory looking for work. The violence lasted for three days from June 20 till 22nd, and ended up to be the most deadly unrest with 34 people dead and hundreds wounded. The two day riot gave way to looting of businesses and burning of several buildings finally ended with marshal law enforcement, again a precursor of the future.

Figure 2.28 Streetcar line ended at the Former Jefferson Courthouse in Delray loop. Source: Detroit Transit History (Detroit Transit History.info 2006)

Figure 2.29 Sign posted in response to Sojourner Truth Housing
Source: East Side Freedom Library (East Side Freedom Library 2015)

Figure 2.30 Ty Cobb sliding into 3rd base. 1909 game against New York Highlanders. Source: This is Detroit 1701-2001, Courtesy Burton Historical Collection. Detroit Public Library.

Figure 2.31 Hitsville USA, former house of Motown where it started. Seated from left; Edward Holland, Diana Ross, Mary Wilson, Lamont Dozier Source: This is Detroit 1701-2001 Pg. 198

All through these years, sports and music enriched Detroit's culture. Detroit was always known as the City of Champions. In 1881 'The Detroits', became the first professional baseball team representing the city, as seen in Figure 2.30. To be followed by Gar Wood winning international prize for speedboat racing in Detroit River, 1931. The Detroit Lions won National Football League championship in 1935 and 1937 Detroit won the Stanley Cup in ice-hockey. Detroit Tigers won the American League pendent in 1934 and 1935. Boxer Joe Louis reigned as heavyweight boxer from 1937 till 1952 and defended his title twenty-five times. There were river clubs focused on powerboating and sailing that operated along the river edge, and Detroit Yacht Club was located at Belle Isle. Detroit celebrated its sports heroes with great pride but what brought out the soul of Detroit to the world at best was its music.

Detroit's love for music was evident as early as 1854 with the publishing of a song titles "*The Detroit Schottische*." By A. Couse. Soon after, "*The Dance of the Brownies*", bought by Jerome H. Remick for ten dollars set his publishing company to become one of the largest in the world by publishing over sixty thousand songs. One of the Detroiters, Emma Hackley took great interest in black music and promoted it by raising funds and scholarship for genuine black music education. Detroit Opera House originally located on Campus Martius hosted concerts from 1914 till 1919 till it moved to upgraded facility on Woodward Avenue where it remained till it closed down for lack of funding in 1939. In 1941, Orchestra Hall now called the Paradise Theater, reopened its doors. Berry Gordy Jr. started Motown, a small rhythm and blues record company named to reflect the newfound identity of the city as the 'Motor City' in 1959. Many singers and artists started their careers with Motown, as seen in Figure 2.31. Smokey Robinson, Stevie Wonder, Marvin Gaye, Temptations, Jackson 5 and the Supremes to name just a few. In eight short years Motown had become an international business and produced 45 rpm singles in the first decade.

This was Detroit at its height in economic power and shaping the national popular culture. Land growth, boundaries and the street system reflected this rapid explosion in 1926 and set it in place for the future.

Within a short span of approximately forty years, from 1910 till 1950, Detroit's population rose from 465,766 to 1,849,568. The numbers indicate a near quadrupled growth. The City of Detroit only gained roughly double the land area as evident in Figure 2.32. Accounts from this time indicate serious overcrowding within the historic neighborhoods. The one mile by one mile American grid added last to the City of Detroit was four-times bigger than the previously added Ten Thousand Acre Land annex of the British grid. The Jefferson grid, was designed as a nations land instrument to facilitate quick annexation of land and in Detroit, it clearly calibrated itself to an auto-enabled user base. Planning dicipline was in its infancy therefore Detroit's street grids served as the main planning guide for land-use. As a general rule, the industrial and commercial building typologies were mainly dotted along the main street gridlines, while the smaller local streets serviced the residential lots.

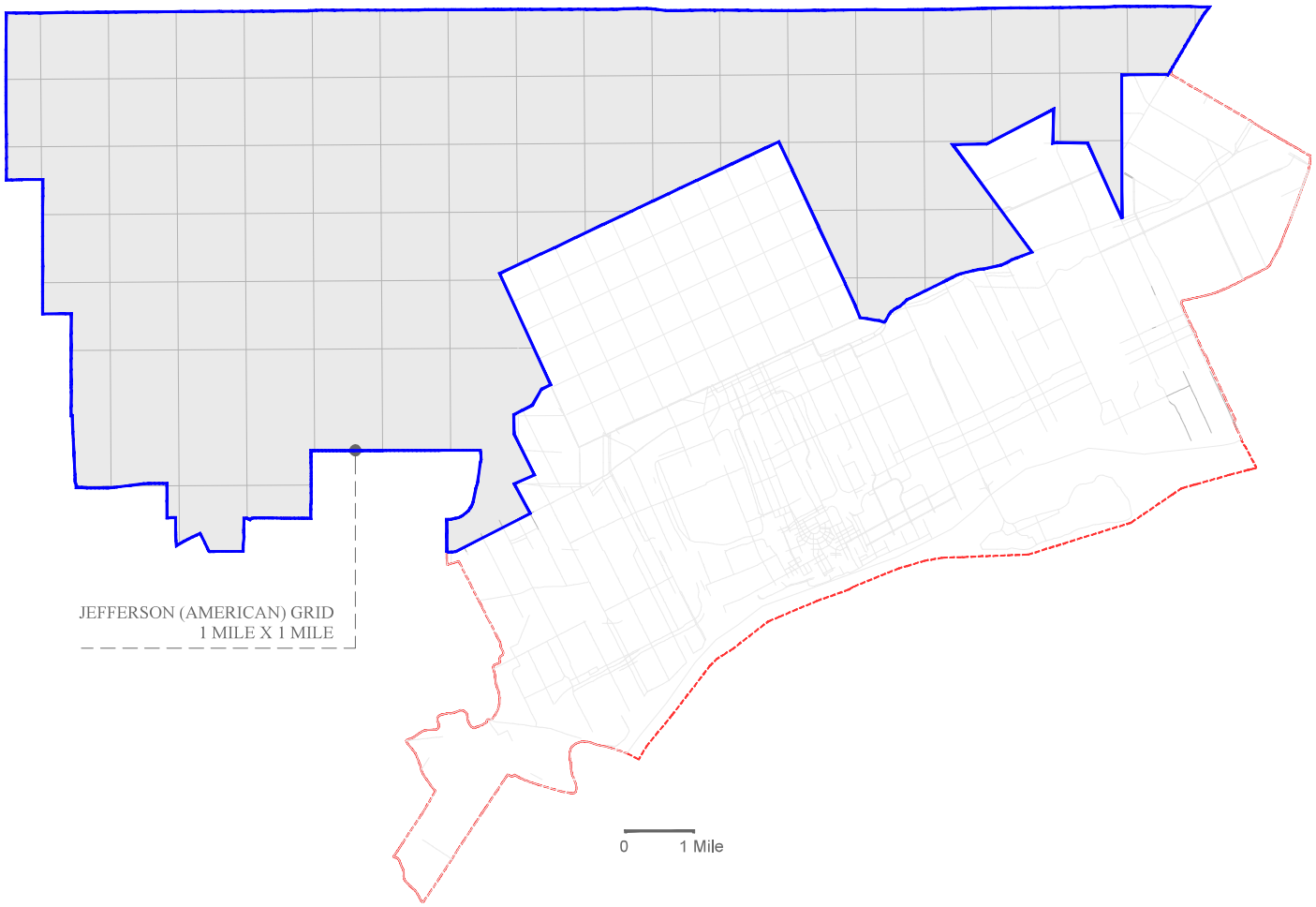
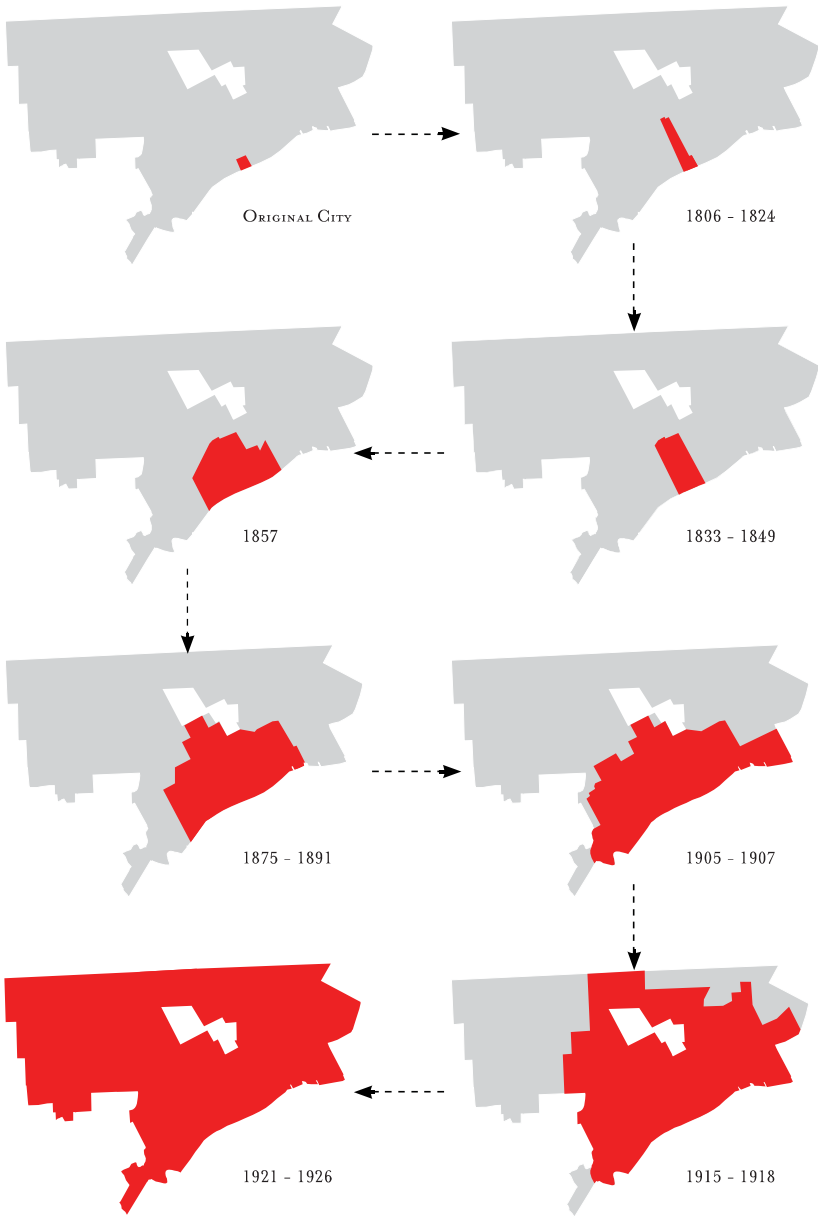


Figure 2.32 The Jefferson Grid, also known as The American Grid.
Drawn by Author

For Detroit, the delayed emergence of planning tools such as master plan, zoning and subdivision regulations turned out to be severely ineffective. During the times of city's rapid growth during 1891 through 1926 as seen in Figure 2.33, the municipal planning dicipline was still in its early stages. During the rapid growth years, the City of Detroit completely surrounded the townships of Highland Park and Hamtramck. When Ford opened the Highland Park plant in 1910, the town boomed along with the success of Model-T. In 1909, Michigan Public Act 279 made the incorporation of a new municipality easier. The Act also made it harder for an existing entity to annex the surrounding suburbs[20]. By 1918 Ford leveraged the Act to incorporate Highland Park as a City. Four years later, Dodge brothers followed suit and did the same for adjoining township of Hamtramck and incorporated it. In doing so the two cities had warded off annexation attempts by the still growing City of Detroit, yet had isolated themselves from the financial perils and responsibility of the big city that surrounded them. The boundary of the City of Detroit had been fixed in 1926 by the State of Michigan. At that time, there was no more undeveloped land left in the city for the industrialists wanting to further expand the automobile manufacturing factories. The industries sought cheaper land in the suburbs because they required larger tracts of land for single story factories which were now operating with horizontally expanded assembly lines.

The global political atmosphere of the time factored in to hasten the demise of factories within Detroit as well. The threat of an atomic attack during World War II and the Cold War which followed, compelled a decentralized national defense policy. Most of the factories located within Detroit were now seeking to disperse out of Detroit and relocate to cheaper suburban lands which were easily linked to the rest of America by the new interstate highway system.[21]

This started a wave of industrial demise within the City itself. The scenario developed so rapidly that by the time a master plan was created for the city in 1951,[22] Detroit was already fully built and, in fact, industries had long begun to decentralize. Departure of industries created a lot of vacancy and signs of blight were already evident in the CBD and mid-town neighbourhoods. rapid growth years seen in Figure 2.37.



Right— Figure 2.33 Historical annexation timeline for the city of Detroit. The cities of Hamtramck and Highland Park are shown in the last two growth phases. Source: Joshua Bedard, *Detroit: Mapping a New Narrative.* University of Waterloo Masters Thesis (2009).

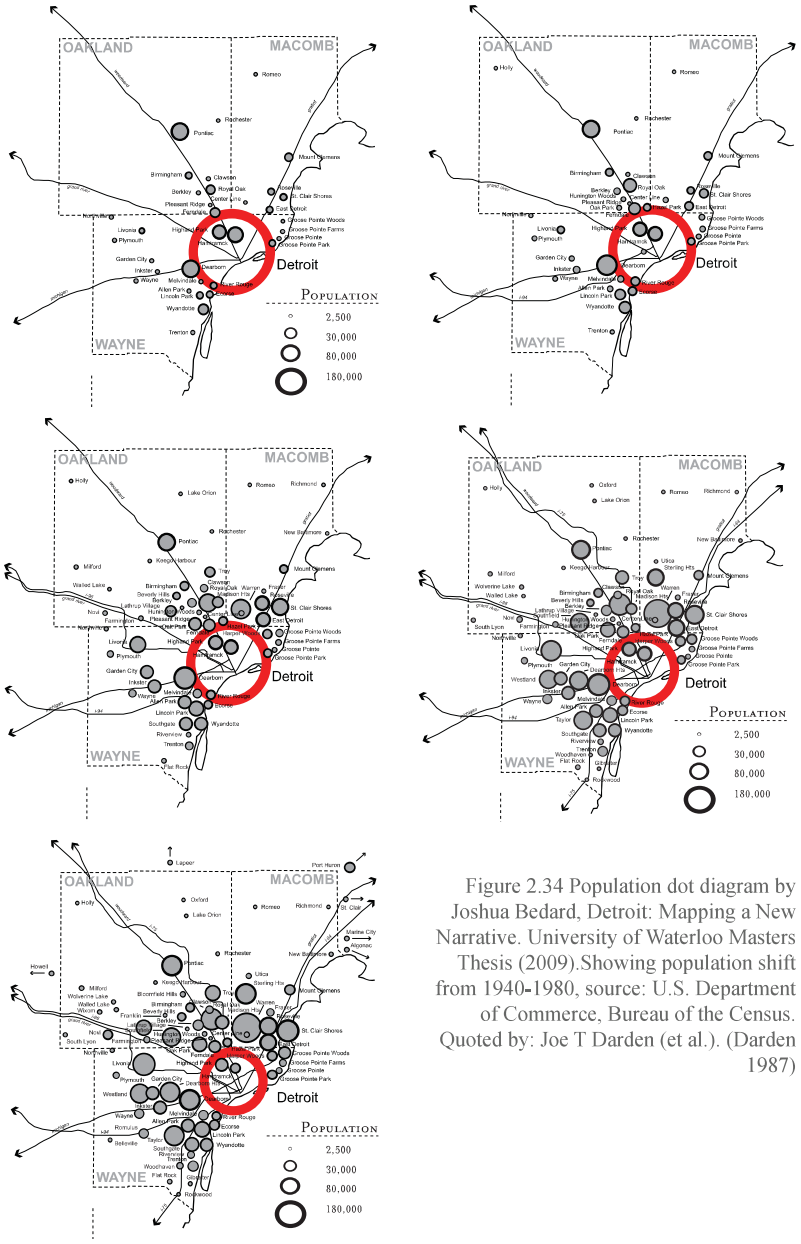


Figure 2.34 Population dot diagram by Joshua Bedard, Detroit: Mapping a New Narrative. University of Waterloo Masters Thesis (2009).Showing population shift from 1940-1980, source: U.S. Department of Commerce, Bureau of the Census. Quoted by: Joe T Darden (et al.). (Darden 1987)

2.5 The Mobile City: 1953 to the Present

This period marks a point of major bifurcation in the urban system. Three processes enhanced urban polarity and pushed the city into decline to a path of no return. Adrian Blackwell, Professor Architecture at the University of Waterloo Ontario, in his research paper 'Detroit's Underdevelopment', captures each historical factor under the titles of divesture, erasure and encampment.[23] First the industrial divestment through relocation of production plants outside Detroit. Second, Federal Highway Act (FHA) and the erasure of strong ethnic neighbourhoods and third, the encampment of black population by pro-segregation real-estate policies during attempts at urban renewal activities.[24] These processes slowly created the shrinking city of today despite the great weather created by the metro area outside the city of Detroit.

Divestment: The Role of Industry

The spatial logic supporting the auto-industry was divergent to making of a good city. Car producers sought large affordable land to build factories, located along railway lines to service the freight demands, and preferably close to skilled workers. Soon after the initial establishment of the auto industries, other parts and accessories production would follow these newly annexed lands, followed by yet another wave of residential annexation of surrounding lands. After the World War II, the city continued to lose its skilled labour to suburban towns, as seen in Figure 2.34, as 20 new plants were established by Ford, Chrysler and General Motors from 1947 to 1955.[25]

Ford's anti-urban viewpoint started this trend, a forerunner to the process of sub-urbanization. Ford's first production facility on Mack Avenue relocated to Piquette plant close to Downtown Detroit, which was relocated to Highland Park located inside mid-town Detroit, this in order to meet the rising popularity and demand for Model-T cars in 1910. Ford had implemented the assembly line principles while at the Highland Park plant. The assembly line production demanded a large single floor in order to provide revolutionary efficiency for production processes. Since Detroit had no further large tracts of land available, Ford relocated

the production outside Detroit, to nearby River Rouge plant located in Dearborn to the west.

Plants at the cities of Hamtramck and Highland Park were still operative but both cities had already separated themselves from Detroit under Michigan Public Act 279, just before 1920's. Since then, they operated autonomously, thereby not sharing the economic burden of Detroit's housing crisis. These were the days of The Great Migration, people were still moving to Detroit, only to find, upon arrival, that most of the industries had left the city. Jobs and housing got scarce and the remaining jobs were soon gone. As suburbanization trends continued, housing fell to heavy segregation laws.

Erasure: Town Planning and Highway Act 1956

As the industries decentralized worker settlements away from the CBD and mid-town Detroit, the city's road congestion increased. The Federal Highway Act of 1956 initiated the interstate highway construction in Detroit. Its goals while having a military origin in nuclear mobility and decentralization were also targeted to decongest roadways leading to the Central Business District for the service sector commuters.

The city's transit system was using horse drawn trams till 1893 which at that point were changed to electric streetcars. A network of railway lines served the industries and a combination of both, the streetcar and industrial-freight railway tracks left the street-grid sporadic and prone to heavy congestion as shown in Figure 3.35. Past attempts to create superhighways and more efficient streetcar networks had not materialized due to lack of funding during the Great Depression. The new arterial highway building completely took out the streetcars and the tracks. The city was now completely automobile and bus dependent. The completion of highways further accelerated the urban abandonment process by both the industries and the remaining middle-class residents, now in pursuit of the suburban 'American Dream'

Highway building in Detroit started with the north-south corridor of John C. Lodge freeway (I-94) in 1950 as seen in Fig 2.36. By early 1970's roughly two hundred miles of freeway were completed and sixty-five mile sections of highways were laid out for further construction, later finished in 1981.[26]

The Highways followed the Woodward street grids in order to bring access to the CBD. The highways converge at point of radial-spoke

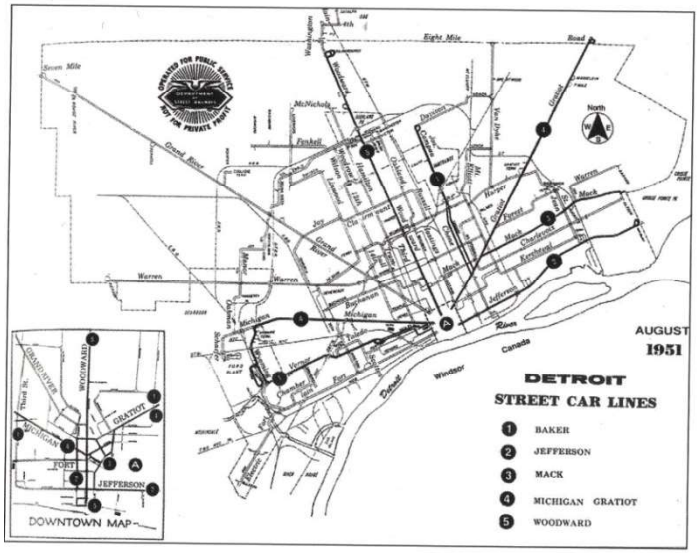
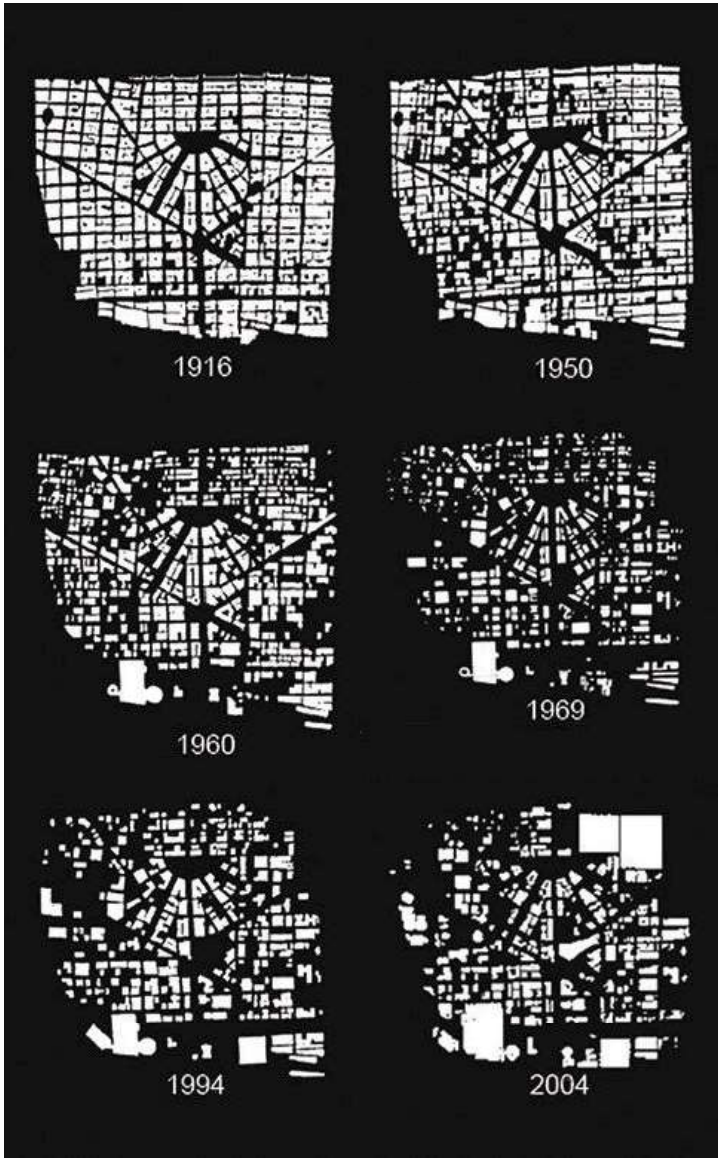


Figure 2.35 The Streetcar system in 1951, Mapping Detroit Pg. 41

Figure 2.36 Aerial Photo showing construction of John C. Lodge Expressway (Hwy MI-10)



layout of the city, creating a dense concrete mesh of road netwroks. Along with providing commuter convenience, the highway construction ended up supplementing the suburbanization trends. The residents from the affluent, historic and culturally rich neighobhoods now had means to follow the suburbanized industries now forming new employement centres. The freeway construction required massive land, not just for the freeway but also the junctions to transfer over to other freeways. Highway land acquisition required the relocation of several residential communities; among them were the residential areas to the west and east of the central and business district (CBD) which was predominantly Mexican American and black neighbourhoods. Prior to this, due to white-flight most of the corporate ridership had already moved to suburbia and the newly built highways were only facilitating the daily commute of suburban employees to the CBD, located at downtown Detroit.

The City however, was hopeful that highway building would restore the connections between businesses community and the City core and therefore boost the economy. In reality the ease of living in suburbia, combined with reliable access through highways only created more divestment within Detroit and compelled white flight to the suburbs.

Under these circumstances, Detroit started a cultural transformation. During the post-industrial stage the city officials tried to reinvent the city identity as a service hub and had some success in persuading major corporations to locate their head-offices in the CBD. This was also made possible since after the industrial decentralization a lot of downtown buildings were vacant due to the drastic drop in land values after the 1943 riot as seen in Figure 2.37.

The highway building process had cut through mature black neighborhoods such as Paradise Valley. The neighbourhoods had to be redeveloped, the businesses and residents relocated, and all had to be done simultaneously.

Deep racial fears played a big part during redevelopment, resulting in racial tension and discrimination. Initially called ‘Urban

Figure: 2.37 Figure-ground drawings of downtown Detroit. Sources: 1916, 1950, 1960, and 1969 drawings: courtesy of DTE Energy, from Doxiadis, C. A. (1970). A concept for future development. Emergence and growth of an urban region: *The developing urban Detroit area (Vol. 3)*. Detroit, MI: Detroit Edison Co., p. 157. 1994 drawing: Plunz (1996), pp. 2012–2013. 2004 drawing: Kelbaugh et al. (2007). Pg. 28,.
June Thomas Manning, *Mapping Detroit Land, Community, and Shaping a City (*2015)

Renewal' and later defined as 'Redevelopment' by Housing Acts of 1949 and 1954 basically targeted the demolition and rehabilitation of the slums and blighted areas. According to June Manning, the property values of the neighbourhoods occupied by largely ethnic and black communities in the vicinity of the CBD had fallen to a point where the city was unable to recover the costs of services by the taxes.

The redevelopment also directed federal funds into midtown neighbourhoods. During these days, several ethnic as well as the historic black neighbourhoods close to CBD, were torn down to make residential districts for middle and upper-middle residents. The Gratiot development, later called Lafayette Park was a mixed-use superblock, designed by Mies van der Rohe and Ludwig Hilberseimer located just south-east side of downtown. The second development, Elmwood Park, was built further east of Lafayette Park. Both of these projects were later proved to be moderately successful in attracting and holding occupancy but did not help to revitalize the surrounding areas.

Construction of luxury apartments at Lafayette Park and Elmwood Park took over areas that were dense and historic black neighbourhoods. The redevelopment demolition of Black-Bottom (named after native black farming soil) and Paradise Valley was targeted these were two of the socially best-knit black neighbourhoods. Here, prior to riots, black and white individuals came together for entertainment and socializing. Hastings Street was a hub of black culture, most of the black-owned shops, businesses, entertainment and publishing establishments were located here. People from Chinatown, Bagley and Corktown were also relocated. The Brewster building project and Chrysler freeway construction all resulted in relocation of 7,66o families and 6,730 singles.

The redevelopment efforts resulted in severing the social networks of the working-class minorities, the stakeholders did not have the best interest of the residents at heart, residents therefore had lost trust in planning discipline from this point on.[27] Despite the renewal efforts, no corporation took the leadership role to bring back a business initiatives that would revive the central core. Most merchants who operated here in 1940's had long fled the city to suburban areas and that process had already decentralized the city's economy and residents. The city was therefore operating the renewal with very little backing from corporate or private funding. Secondly the massive outflow of middle-class was not fully anticipated by the city. Due to deindustrialization, the working class had no economic uplift. The shriking of Detroit had begun in full.

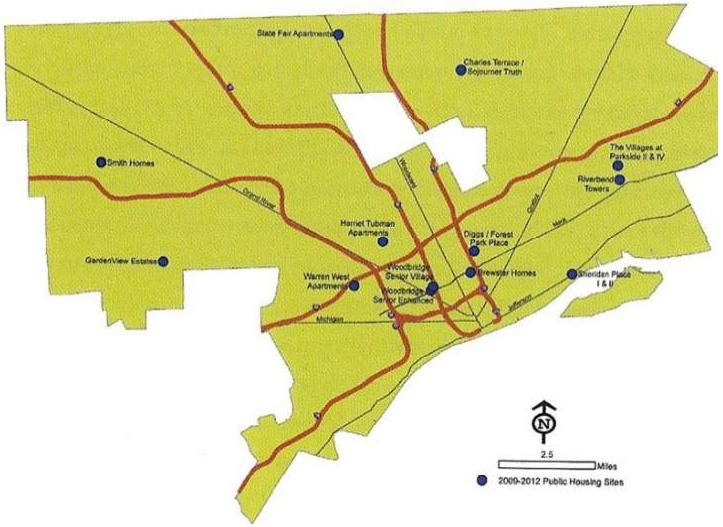


Figure: 2.38 Puiblic housing developments around downtown Detroit.
Source: June Thomas Manning, *Mapping Detroit Land, Community, and Shaping a City* (2015)

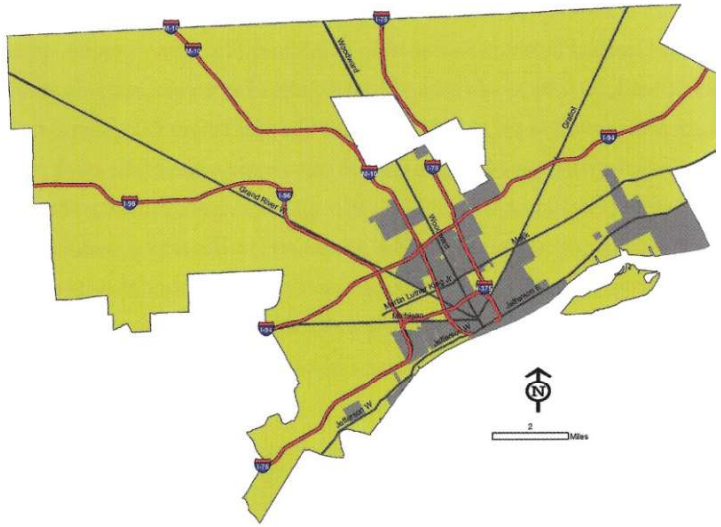


Figure 2.39 Major development focus areas from 1956 to 1993.
Source: June Thomas Manning, *Mapping Detroit Land, Community, and Shaping a City* (2015)

The real estate industry, going back to the postwar years, facilitated the depopulation and disinvestment of the city and especially facilitated the racial division of the metropolitan area through pro-segregation policies, steering prospective home buyers or renters to neighbourhoods based on assumptions about their racial or ethnic backgrounds, sending blacks to black or transitional neighbourhoods, sending whites primarily to white neighbourhoods. And those patterns are very visible on the landscape of metropolitan Detroit and most cities, for that matter, in the United States. The transformation of the home finance industry, and particularly the proliferation of sub-prime lending in working-class and lower middle class communities, has been devastating, and that's abundantly clear in Detroit and in some of its inner-ring suburbs, and that's something that's going to take quite a while to rebound from.[29]

—Thomas Sugrue in his interview with John Gallagher, (2017)

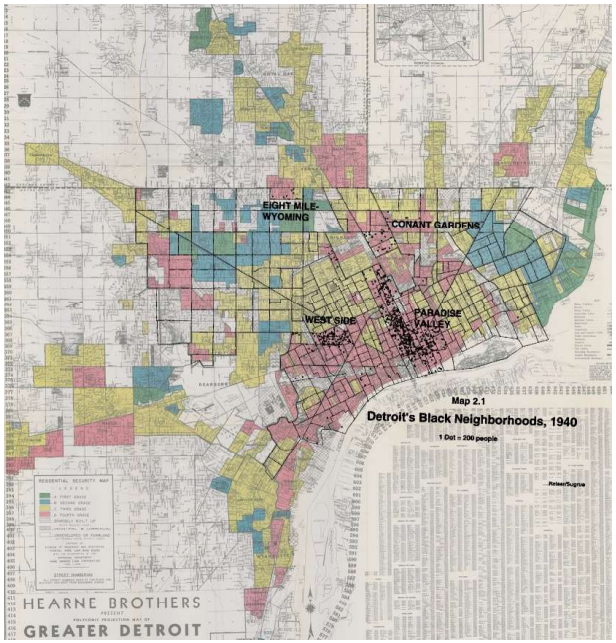


Figure. 2.40 Redline maps from 1939 overlay with Black neighbourhoods in 1940
Source: https://detroitography.com/2014/12/10/detroit-redlining-map-1939/
Encampment: Federal Housing Act, Planning and Redevelopment

Detroit's redevelopment efforts from 1949 till 1974 are contextualized with race riots causing high racial tensions, Government supported suburbanization, the departure of key economic attractors and lack of reliable public transportation network for access to suburban jobs for those workers who could not afford cars. The City was still recoiling from the effects of massive relocations due to suburbanization and riots of 1943 that had left a lot of damaged building inventory, also abandoned buildings due to industry relocations. The City was financially weak due to a reduced tax base. Officials resorted to private non-profit and corporations to take leadership in redevelopment. The corporations had their main interest in the downtown, due to stronger market forces and returns. At the time, the downtown core was filled with old warehouse structures that were vacant and damaged and had to be demolished to free up the land. The City decided to create a civic center for public, to enjoy riverfront view. The construction of civic center in early 1950's started a construction trend resulting in relocation of head offices of several big corporations to the Detroit CBD creating new skylines.

Within ten years of highway construction, in 1960, Detroit's population was reduced from 1,849,568 to 1,670,144. Meanwhile the suburbs nearly doubled to 2,092,216. More people lived in the surrounding suburbs than in Detroit. Due to the relocation of white people from the mid-town neighbourhoods, a lot of previously white, desirable neighbourhoods were now accessible to black residents.
Each year, a steady stream of 7,000 to 9,000 predominantly white households shifted to suburbs causing a major change in the racial composition of all of the neighbourhoods. From 16.3 % black population in 1950, Detroit had changed to 43.7% black population by 1970.[28]

The white population in the Detroit city had fiercely defended the purity of their racial composition in the past, however with the racial composition of overall city neighbourhoods changing drastically and the 1967 riots caused tensions and a new ferocity in white exodus. Real estate business sought to gain more from these trends and used blockbusting strategies to force irate white families out of their neighbourhoods to the suburbs and moved the middle-class black people into these newly evacuated homes, gaining business from both parties, Redline map seen in Figure 2.41.

These socio-economic transformations brought major instability to the neighbourhood property values and signs of blight and slummization were evident. Home Owner's Loan Corporation maps had

redlined these parts of city preventing homeowners within these sectors from getting Federal Government funding for home mortgage. The redlined maps therefore proved to be a powerful tool to encamp the poor in their dilapidated state while middle class black and white residents got settled into stronger parts of city see Figure. 2.40. This created a city that now had even deeper class segregation along with previously etched race segregations, within its urban fabric. The local community groups such as The National Association for the Advancement of Coloured People (NAACP) and Detroit Urban League (DUL) recognised the inimical effects of these neighbourhood transformations and endeavoured to improve housing for African Americans.

After the departure of the auto industry, the few remaining manufacturing plants still operative were hit by foreign competition and the 1973 oil crisis. Lack of employment and housing segregation between black and white communities further intensified race relationships, simmering tensions between black community and the predominantly white Detroit Police Department. Figure 2.42 shows the events on 23 July, 1967 when a raid at the Blind Pig, a bar located on the 12th street, now called Rosa Parks Boulevard, caused the black community to revolt which lasted for five days. As seen in Figure 2.43, National Guard had to be called to restore peace to a burning city, where 43 people were dead, hundreds injured and 25 buildings burned and looted. Effects of this revolt are seen today at Rosa Parks Boulevard, a neighbourhood just north-west of CBD. Damaged buildings and high vacancy remain untill now. The shock and impact of these riots was reflected in the works of US and Canadian songwriters such as Gordon Lightfoot and marks the beginning of the new status quo of today.

Black day in July, Black day in July.
The streets of Motor City now are quiet and serene
But the shapes of gutted buildings, strike terror to the heart
And you say how did it happen. And you say how did it start
Why can't we all be brothers. Why can't we live in peace
But the hands of the have-nots, keep falling out of reach.

(Songwriters: Gordon Lightfoot, *Black Day in July* lyrics

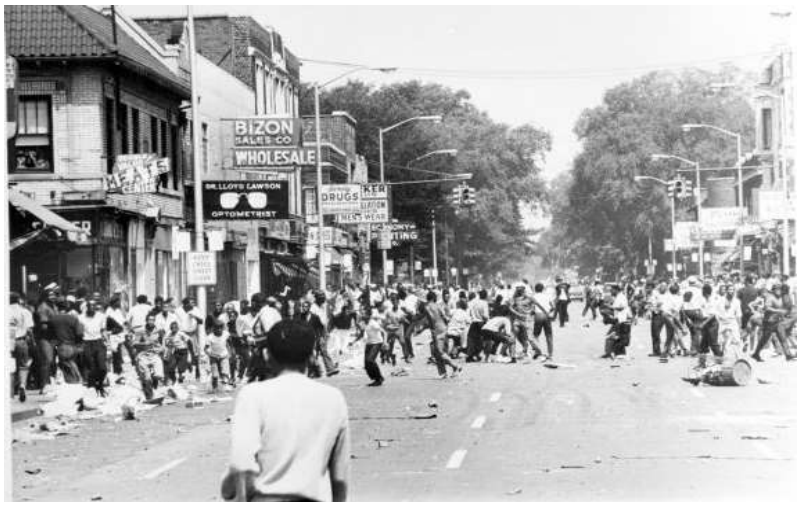


Figure 2.42 Detroit's Civil Unrest in 1967. Conflict at 12th Street
Source: Walter P Reuther Library, Wayne State University. (eclemens 2011)

Figure 2.43 A young national Guardsman watches as buildings burn. Pulitzer Prize winning photo by Detroit Free Press.
Source: This is Detroit 1701- 2001 p 198

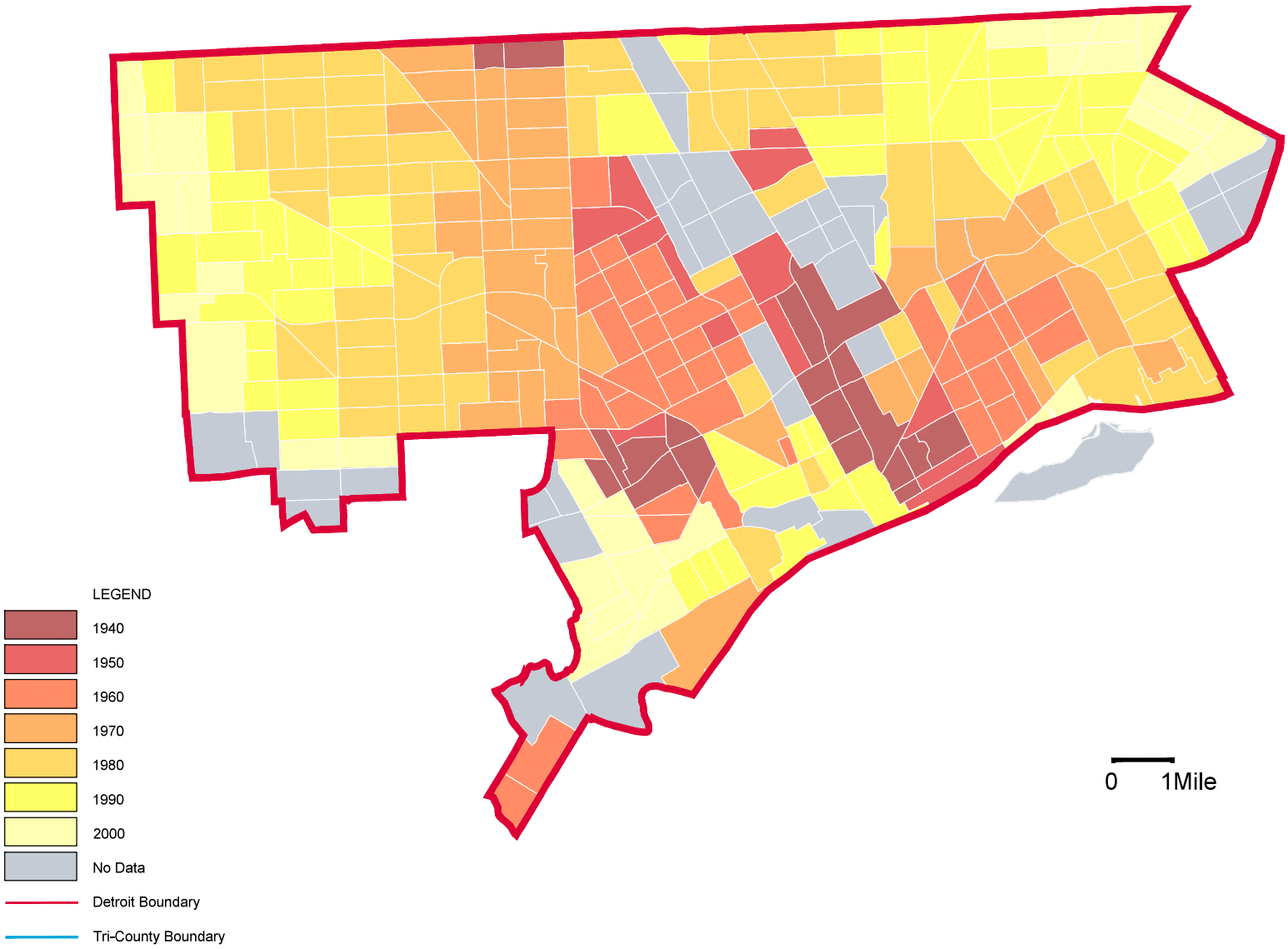


Figure 2.41 Location of Detroit's black population from 1940 to 1970, mapped by Robert Sinclair.
Metropolitan Detroit Source: This is Detroit 1701 – 2001 (Woodford 2001) Pg. 174

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Chapter Three PENNIES ON THE DOLLAR

3.1 Present Detroit: Post Municipal Bankruptcy

The city of Detroit holds the record for the largest ever American city to default and file Chapter 9 bankruptcy. On July 18th, 2013 Detroit filed for approx. $ 18 to 20 billion in debt. Prior to filing for bankruptcy, Governor Rick Snyder appointed Kevyn Orr as emergency financial manager, to audit and assess the state of municipal services and departments so as to possibly avoid bankruptcy *(Fig. 3.1).*

Orr's assessment of the city services painted a bleak yet truthful picture of understaffed and overworked city officials, with meagre or barely operational resources and equipment. Although the city was headed towards financial crises since the industries had left for suburbs, Mayor Kwame Kilpatrick's financial corruptions added to the municipal burdens.[1]

After a couple of setbacks, Detroit was deemed eligible for bankruptcy, on April 2012 Mayor David Bing and nine member council entered into an agreement with Michigan Governor Rick Snyder. The state of Detroit reported by Kevyn Orr clearly indicated that Detroit was insolvent on cash flow, showing shortfall for the yearly budget and that much of the deficit was towards the City retirees' pension benefits. Concerned citizens filed for a lawsuit against the bankruptcy proceedings, however the appointed Judge, Steven Rhodes suspended or overruled. Detroit's secured debts were traded off at Wall Street and its unsecured debts included the police and firefighter pensions along with private investors who had bought city's unsecured debt.

Roughly 30,000 municipal employees were owed pension at the time of City bankruptcy proceedings.[2] Grand bargain ended the

- For the city, the comeback will be much harder. Its decaying neighborhoods can't be sent elsewhere. But creditors whom Detroit owes more than $14 billion will have to take pennies on the dollar. [3] -

Crain's Detroit Business (2013)

- New streetlights aren't a cure-all for sparsely-populated streets. Neighborhoods with chronically failing schools — or no school at all — aren't going to attract families back to Detroit. Poverty, blight and abandonment outside of the vibrant 7.2 square miles of greater downtown serve as a visible daily reminder of what Detroit's historic trip to bankruptcy court couldn't immediately fix.[4] -

Crain's Detroit Business (2017)

Figure. 3.1 Detroit emergency manager Kevyn Orr and Gov. Rick Snyder. [5]
Source: Allen Pyke, *ThinkProgress*, (2013)

Figure. 3.2 Detroit Institute of Arts assets were up for bargain during bankruptcy [6].
Source: John Gallagher, *Detroit Rising*, Detroit Free Press (2015)

bankruptcy on December 2014, with erasure of $ 7 billion in debt (John Gallagher 2015). There was privatization of assets such as Belle Isle, Joe Louis arena site, and privatization of municipal services such as street lighting, waste removal, water & sewage, and school boards. Mayor Duggan was able to secure $ 121 million for Hardest hit funds to remove blight and another $ 185 million devoted to modernize estimated 65,000 streetlights.[7]

Recent Stabilization Efforts

In the aftermath of its financial crisis, its post-industrial redevelopment and urban renewal efforts, Detroit has been engaged in efforts to revitalise the urban core and midtown areas. An analysis of the three key noteworthy efforts that have been debated show some promise, namely, revitalization of the CBD, development of the M-1 Rail line and Detroit Future City, a strategic plan for future developments within Detroit by team of an ad hoc professionals.

The M-1 LRT Transit Line:

In 1966, Congressional creation of Urban Mass Transportation Corporation (UMTA) was handed the responsibility to come up with new types of transit possibilities for the city. UTMA created the Detroit People Mover Program which netted the creation of an elevated monorail transit service that only operated within the CBD. Initial plans to connect the CBD with rail tracks along Woodward Avenue all the way to Pontiac didn't materialize for years until the creation and operation of M-1 Rail, a light rail transit system or LRT in 2017. The M-1 LRT rail line has been operational since May 2017 and is owned and operated by Qline; the naming rights are owned by Quicken Loans *(Figure 3.3, 3.4)*. This newly established rail along Woodward Avenue connects People Mover rail services which operates within Central Business District, with the Amtrack rail service operating just north of Detroit.

Although past redevelopment efforts were met with little success, now there are reports of small businesses returning along Woodward Avenue since the establishment of the M-1 rail connection. People are still skeptical of the economic trickle-down effect, it is wait-and-see for any economic benefit to reach the neighbourhoods.[8]

The Qline streetcar service, a 3.3 mile long (5.3 kilometer) long streetcar line, has been operational since May 2017. The LRT system

—how do you bring commerce and investment into working-class neighbourhoods in Detroit? How do you stabilize the housing market in neighbourhoods where residents are city employees, blue-collar workers, folks working the service sector? The odds are pretty steep because there's not a lot of bling in revitalizing outlying lower middle class neighbourhoods. Developers aren't particularity interested in them. Big-city governments usually make some nods toward them, but don't put a lot of their resources and energy there because you get a lot more visibility and attention for high profile downtown redevelopment efforts or gentrification that appeals to folks who are writing travel columns and reporting on a city's energy. But the future of a city, if it's going to be successful, the future of Detroit is going to be improving the everyday quality of life for residents who are living a long way from downtown and a long way from Midtown, who probably aren't ever going to spend much time listening to techno or sipping lattes.[9]

Thomas Sugrue interviewed by John Gallagher: "Trickle-down urbanism won't work in Detroit", *Detroit Free Press*, *Detroit Regional Chamber.*. (2017)

- So, for now, the QLINE is about economic development — bringing potential customers to the many shops, restaurants and other destinations on its 3.3-mile route along Woodward from Congress to Grand Boulevard. A few people who live in Midtown may catch it to commute a mile or so downtown, and vice versa. But at this point, it doesn't pretend to be an essential part of metro Detroit's daily commute.[10] -

Figure 3.3 Dan Gilbert owner of Quicken Loans who bought more than 60 buildings in the CBD Detroit.[11]
Source: Peter Moskowitz, *The Guardian* (2015)

Figure 3.4 Detroit QLine Streetcar, owned by M-1 Rail is operational since May, 2017
Source: Eric Seals, Detroit Free Press.[12]
Photo Credit: Eric Seals, *Detroit Free Press*,(2017)

provides ridership along the central Woodward Avenue corridor, which splits the city into two, running north and south axis ending at CBD. The LRT has been on the residents and business owners' wish-list to spur economic and social growth within at least the city central corridor.

M-1 Rail is a business consortium who have been advocating for a rail system so as to invigorate the regional economy. The regional networks have been using several public streetcar systems but Detroit CBD was not connected to any of them via light rail. Total cost of construction of M-1 Rail was $140 million. Rip Rapson, CEO of Kresge Foundation, who contributed $ 50 million, is an optimist and wants to see this system expand to a larger regional system. Ridership data is currently being collected and monitored to gauge the success of the facility and assess possibilities for a future trends. The fares are affordable and calibrated to the working class residents. Service frequency is 20-25 minutes and expected to increase if frequency ridership shows a growth.

With the new Qline streetcar services there is an affordable and reliable north-south transit service that's now available to the public however due to the spread of Detroit, the east-west commute is still going to remain questionable until a more reliable and affordable solution is made available. The question now remains if the city's economy would get the needed boost to create the jobs that can employ working-class citizens.

The Gentrification of the CBD

In a recent interview with John Gallagher of the Detroit Free Press, University of Pennsylvania History Professor and Detroit native,Thomas Sugrue talks about urban core gentrification and its anticipated "trickle-down effect'. Traditional urban planning approach is to stabilize or grow the central business district and allow its economic benefits, to eventually trickle out to the residential neighbourhoods. Much of the central core stabilization can be attributed to a well-established corporate economy and the federal, public and private development endeavours rooted in real-estate growth markets. Although this approach has worked successfully for several cities, gentrification of urban core has produced dismal results in Detroit's neighbourhoods *(Fig 3.5)*, and is seen as largely ineffective in these areas.

Further in his interview with John Gallagher, Thomas Sugrue, sheds light on a few key factors that inspired the direction of this analysis. Sugrue states that 'Trickle-down Urbanism' will not work in Detroit because, firstly, this approach is mismatched to the scale of its urban context, secondly, jobs created are a mismatch to the working-class resident profile, and, thirdly, these efforts are misdirected in location. Sugrue acknowledges that downtown revitalization efforts are misdirected in scale, because they lack the density to attract significant numbers of creative class, a small injection of the creative-class and hipsters will not boost Detroit's economy for working-class poor residents. Secondly, the creative class and its impact on economy, a concept that's much popularized by an American urban studies theorist Richard Florida, is utterly overstated, Sugrue points out that the creative class attracts a largely middle-class population; however the population at peripheries has a very small middle class if any at all. Thirdly the location of these efforts is a poor fit, Sugrue agrees that gentrification brings all sorts of small business at the central city core, but the locus of these efforts is far removed from the struggling neighbourhoods that it is practically ineffective. Sugrue points out the fourth and most important factor, that Detroit lacks ethnic diversity, which has an influence in deepening racial fears, causing a barrier in attracting a new diverse crowd to the neighbourhoods. Sugrue also points out, that the real estate industry

—It lacks a density of cities that have been more successful in attracting a significant population of creative types. It's suffered 60-odd years of disinvestment. It's scattered over roughly 139 square miles. It's hard even for a concentrated district to have effects on neighbourhoods even a mile or two away because the city's so spread out. And Detroit's a majority African-American city. Despite changes in attitudes over the last half century, it's a high barrier to attract a diverse population into a city because of still deep racial fears and really deeply entrenched patterns of segregation. I don't want to suggest that things haven't changed. They have. But American metropolitan areas in the northeast and Midwest, and Detroit is a prime example of this, still remain very highly segregated by race. The infusion of 5,000 or 10,000 or 15,000 hipsters and young professionals is not going to fundamentally alter that reality.

Thomas Sugrue interviewed by John Gallagher:
"Trickle-down urbanism won't work in Detroit",
Detroit Free Press, Detroit Regional Chamber.. (2017)

Figure 3.5 Detroit Aerial: Downtown CBD and Midtown Bereft Zone
Source: https://www.nytimes.com/interactive/2014/12/07/opinion/sunday/exposures-detroit-by-air-alex-maclean.html

—It's a pretty commonplace assumption that if you gentrify neighbourhoods, if you bring new investment to downtown, that its benefits will trickle down to the majority of the city's population. There are benefits from new investment, including job creation, increased tax revenue and safety in the city, but on the other hand, the kinds of jobs that are being created by a lot of the downtown redevelopment are jobs for folks who have significant education, skills and means already. They're not, by and large, creating stable secure jobs for folks down the ladder, for working-class folks in particular. Gentrification brings all sorts of small businesses, coffee shops, trendy bars, restaurants, art galleries and a vitality and energy to neighbourhoods that have often been bereft of commerce for a long time. But again, these aren't places that are bringing back the jobs that are essential to the city's future stability and possible growth.

Thomas Sugrue interviewed by John Gallagher:
John Gallagher, *Sugrue: Trickle-down urbanism won't work in Detroit*,[13]
Detroit Free Press, Detroit Regional Chamber.. (2017)

Figure 3.6 Thomas Sugru, Detroit native, University of Pennsylvania History Professor and author of *"The Origins of Urban Crisis"* [14]
Source: (Shea 2014)

played an antagonistic role during the postwar years in order to facilitate the white-flight and divestment of the city and, therefore, has lost the trust of the neighbourhood residents.[15]

Sugrue *(Fig. 3.6)* further points out that revitalization of CBD areas as a strategy is pointless because it will not happen at a scale grand enough to make a difference at the Detroit's periphery neighbourhoods. Any efforts to stabilize neighbourhood must be focused directly at the periphery and mid-town neighbourhoods. These neighbourhood residents are predominantly working class or unskilled, so the new types of jobs have to match the residents skill set. The residents are also lacking the means to get to work. With lack of reliable bus services and community services, affordable transit and child-care are a barrier to employment. Therefore, the scale and magnitude of vacancy, lack of diversity and cultural segregation is so high that they are causing perpetual shrinkage of the city as people without hope of work or community slowly vote with their feet. The inexorable momentum of this process dispels the myth of gentrification and its benefits through trickle down urbanism strategy for Detroit based on lack of density, diversity, miss-matched skill-sets, and small relevant scale of revitalization and segregation of its locus are so built-in that the barriers to gentrification of CBD solving the problems of the disenfranchised are high and potentially inseparable in the quick timeframe.

Detroit Future City (DFC) Strategic Plan

City of Detroit and the Kresge Foundation created a team of planners, architects who have been actively liaising with private and community organizations to generate a future plan and vision for the city of Detroit.

The team was previously led by Toni Griffin, and currently by Maurice Cox, both urban planners. The key objectives of the Detroit Future City vision is to create a stabilized city core and neighbourhoods. The plan envisions a stabilized population of 400,000 – 600,000 with jobs and stable housing values. The planners have been actively engaged with neighbourhood community organizations to draw up goals and objectives for their future environment.

The controversial planning framework has classified the neighbourhoods into traditional, live-make and urban green neighbourhoods based on a detailed study of existing neighbourhood contexts and available land and building resources and inventory *(Figure 3.8)*. The plan seeks to use the urban voids for brownfield remediation, green and blue infrastructure to create a sustainable self-sustaining city by creating dense walkable neighbourhoods and infusion of new typologies such as live-make and green infrastructure for storm-water management and sustainable living spaces. The planning elements identified by DFC are economic growth, neighbourhood improvements, updating City infrastructure, update land use policies and improving land and building assets.

Many Detroit residents are very dubiously waiting to see an action plan based on the vision and comprehensive strategies outlined by DFC reports, and quite a few are not so convinced *(Fig 3.7)*. Until now millions of philanthropic funds have been dedicated by Kresege Foundation and Kellogg to Detroit Economic Growth Corporation. Additionally, Ford, Knight, Erb and Hudson-Webber foundations have pledged funding for implementation of pilot projects.

Figure 3.7 Graffiti on an abandoned building in a depopulated neighborhood at 31st and Buchanan on the west side reflects uncertainty in many areas of the city. It says, "The DFC plan says this hood has no future."
Source: Bridge | News and analysis from The Center for Michigan, photo by Bill McGraw
Source: McGraw (2015)

Figure 3.8 Green areas inside residential neighborhoods could make Detroit a leader in sustainable land use, the Detroit Future City framework said.
Source: *Detroit Future City Strategic Framework*, Detroit Future City (2018)

3.2 Stability Constraints

Detroit's is still gathering itself from the municipal turmoil after bankruptcy. Since 2014 services and amenities have been reported to have improved, such as improved police and ambulance response times.[16] Upgraded LED street lighting task is reported to have been completed and thousands of blighted structures have been removed since 2014, as the ongoing blight removal continues.
The spatial segregation however continues as the growing void zone of abandonment separates the central business district farther from the residential neighborhoods. The City of Detroit continues to shrink in population. The weak zones still have few small pockets of residential occupancy, which generates a randomly scattered patchwork of densities.

Socially, the racial and class segregation continues to reveal itself through its continued poverty and lack of racial diversity *(Fig. 3.9)*. Detroit has several socio-economic and spatial deterrents, which act as urban stability constraints, such as, concentrated poverty, poor living conditions, poor housing stock, uneven density, auto-centric urban grain and homogenous typologies. These six factors require a careful analysis prior to any proposal for a bootstrap intervention. Following is a series of maps which highlight each issue.

"je ne suppose rien, je n'impose rien, je ne propose rien, j'expose"...

A well-known dictum, "Je n'impose rien; je ne propose rien: j'expose," which means: "I do not impose anything; I do not propose anything: I expose."

Words of an anonymous Master

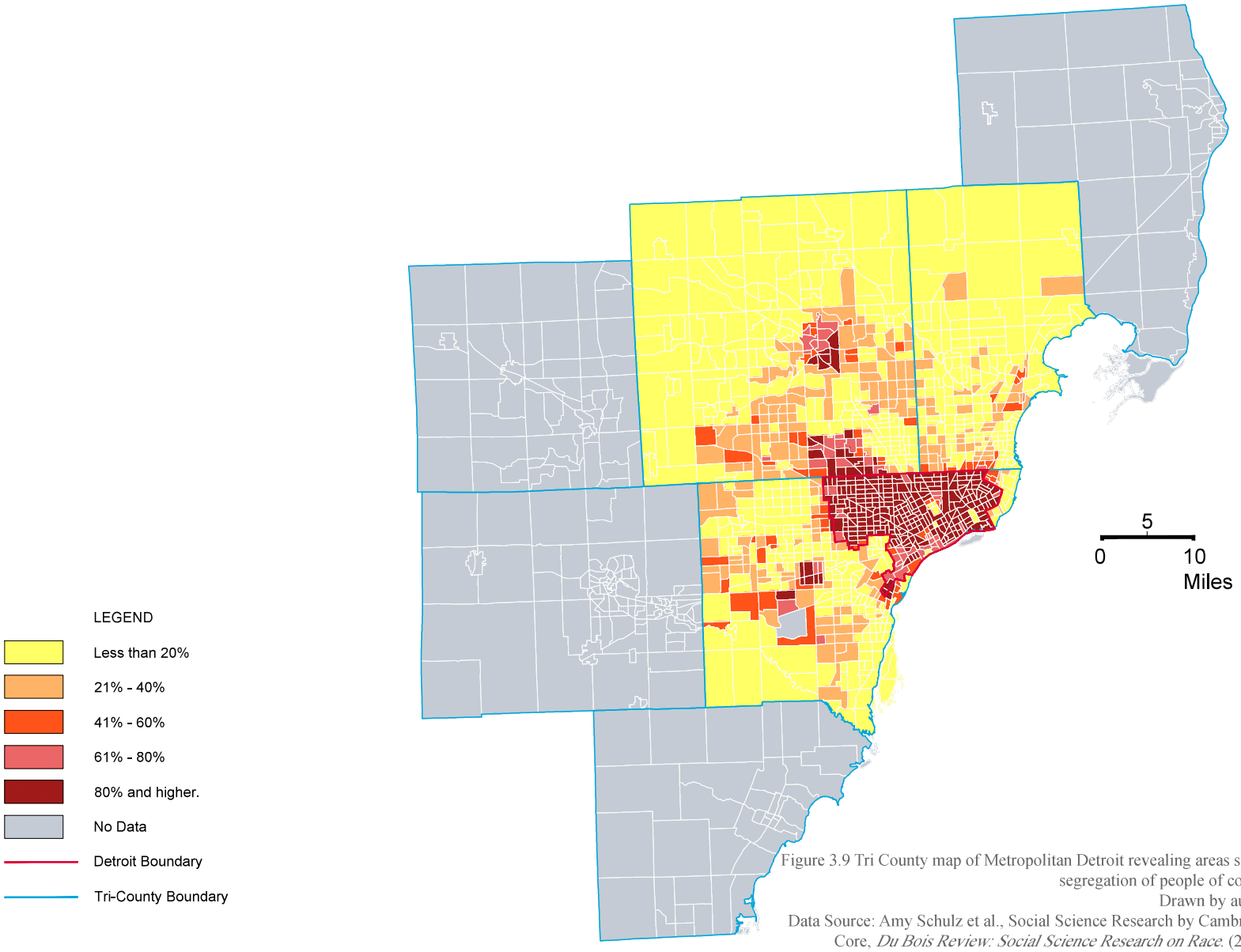


Figure 3.9 Tri County map of Metropolitan Detroit revealing areas social segregation of people of colour.
Drawn by author
Data Source: Amy Schulz et al., Social Science Research by Cambridge Core, *Du Bois Review: Social Science Research on Race*. (2016)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Concentrated Poverty

Detroit's urban crises had started with de-industrialization, but the situation got worse with the later years of globalization and off-shoring of job markets. The de-proletarianization, or the shift of urban economy from skilled industrial workers settling to work as wage labor is indicative of overall downward social mobility. Discriminatory hiring practices continued even after the State passing the Fair Employment Practices Law in 1955. Employers insisted on hiring white workers even for semi-skilled work or unskilled labour historically open to blacks. [17]

The years from 1947 to 1963, Detroit lost 137,000 manufacturing jobs first to the metro Detroit suburbs and then through the process of offshoring of the labour market. As well-paid jobs disappeared as shown in Figure 3.10, talented and educated middle-class residents left Detroit to find work, stay culturally cool, and socially healthy. The extraordinary cost of departure of higher educated and skilled persons sends a further negative feedback to the economic growth cycle by lowering the per-capita income, impacting the tax-base, and leading to the curtailment of risk-takers who have the potential of creating high-paying ventures.[18]

According to U.S. Census Bureau 5-year estimates, in 2015 the median household income in Detroit was $ 25,764, whereas overall Michigan had a median household income of $49,576 as drawn out in Figure 3.10.

This pattern of continued under-employment and unemployment has had a profound impact on the socio-economic conditions and poverty levels of Detroit's residents. A reasonable assessment of the average Detroiter's living conditions can be made by looking at the economic statistics gathered from the 2013 census, provided by the U.S. Census Bureau.[19]

Over a third of the city's residents live beneath the poverty line, many concentrated in neighborhoods where a majority of their neighbors are also poor. A visit to the city's welfare offices, hospitals, and jails provides abundant evidence of the terrible costs of the city's persistent unemployment and poverty.

Thomas Sugrue, *The Origins Of The Urban Crisis*, [20] (1996) Pg. 3

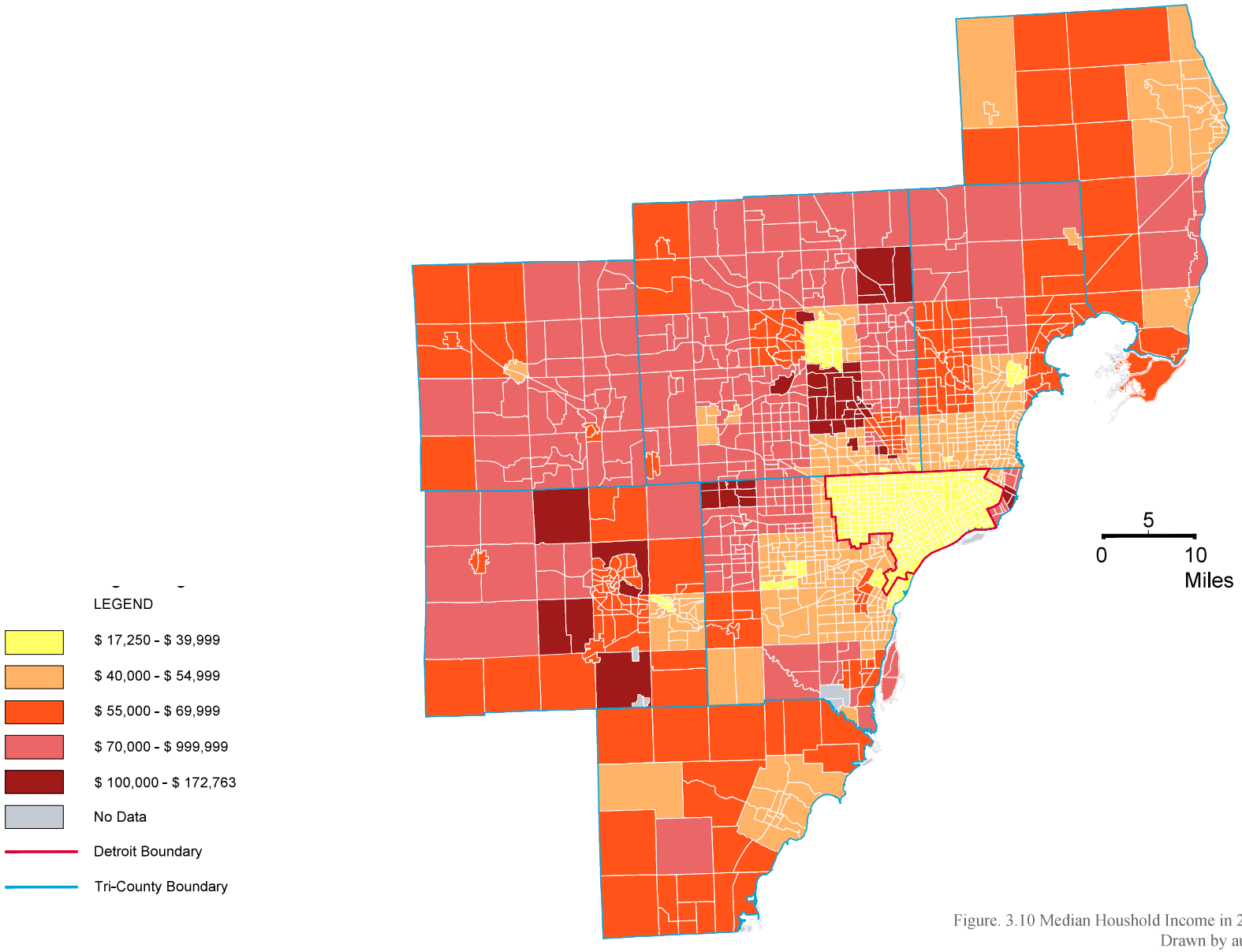


Figure. 3.10 Median Houshold Income in 2015.
Drawn by author
Data Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

From the 2013 statistics reported by U.S. Census Bureau, 53.4% of the population worked in the labour force of which 15.2% of the population is unemployed. Of the 38.2 % of the population who did work in 2013 (excluding armed forces), their median household income is $ 26,325, which was roughly half of a Metro-Detroiter's median household income at $48,411. *(2013, Fig 3.11)*. These low incomes and high unemployment rates had placed 33.9% of the city of Detroit's families below the national poverty level, where overall Michighan had 12.0% housholds below the national poverty level.[22]

One would have imagined the situation to be getting better after 2014 municipal bankruptcy, but the 5-year estimates in 2016, provide percentage of housholds below poverty line in the City to be 34.7%, as indicated in Figure 3.12, whereas Michighan is showing an increase in number of households living below poverty line up to 18.2 %.

Three major indicators of urban poverty and its social impacts, is increased dependency of people on public assistance programs, higher vulnerability to living a life in criminal or in unhealthy environment.

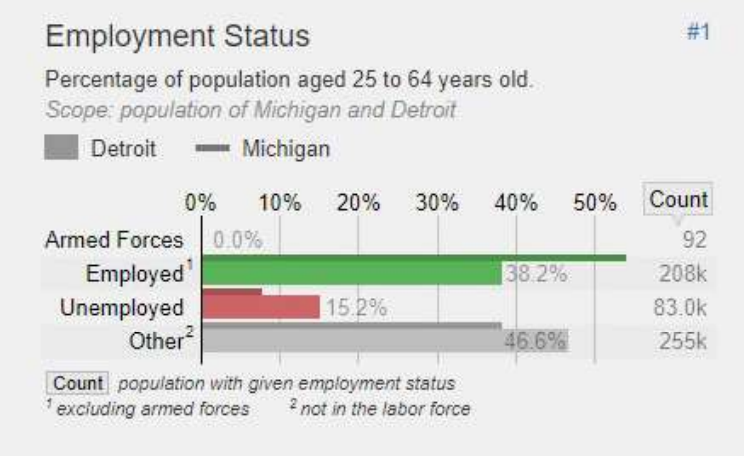


Figure 3.11. Employment Status. 2013 Detroit Statistics. [21]
Source: Statistical Atlas (2015)

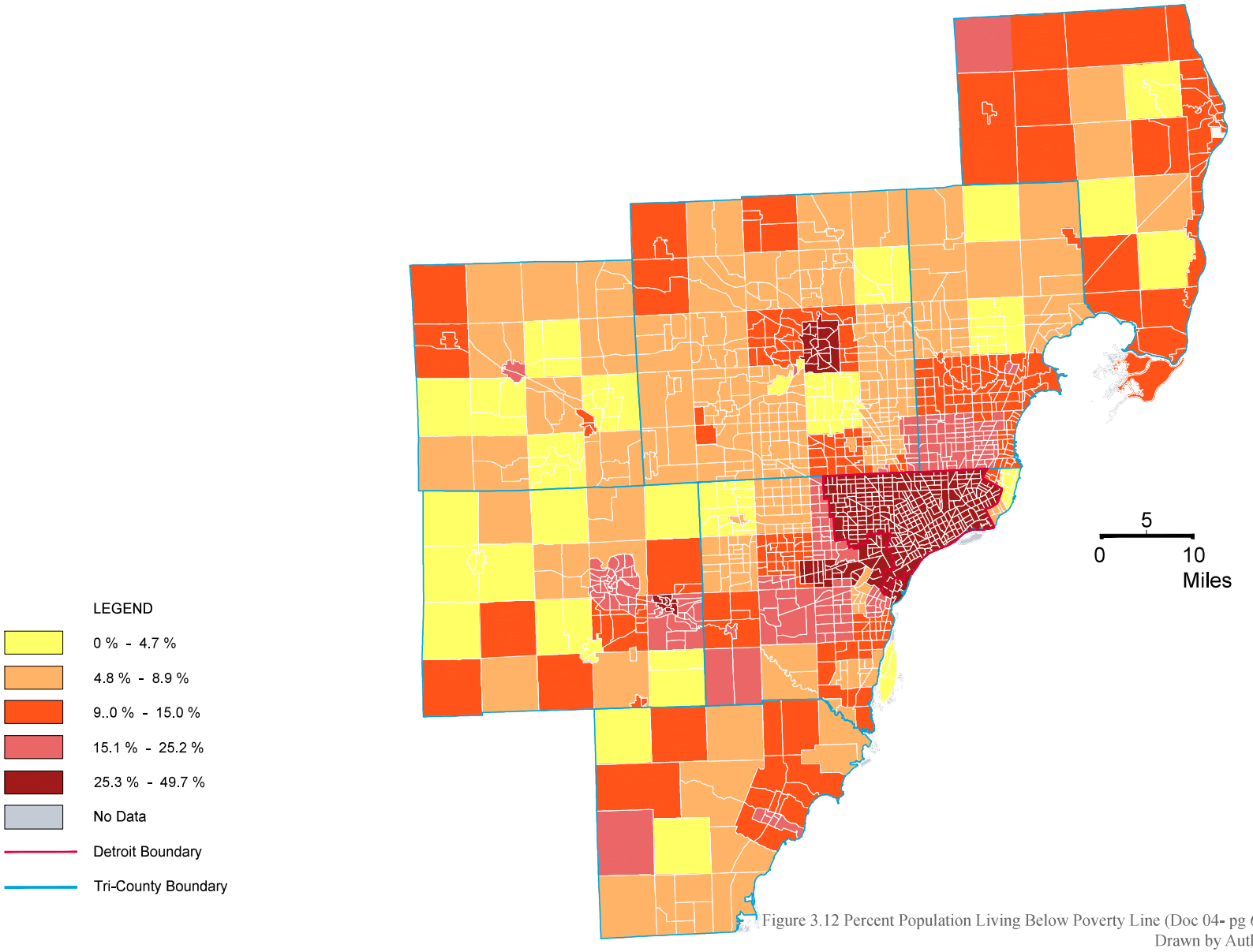
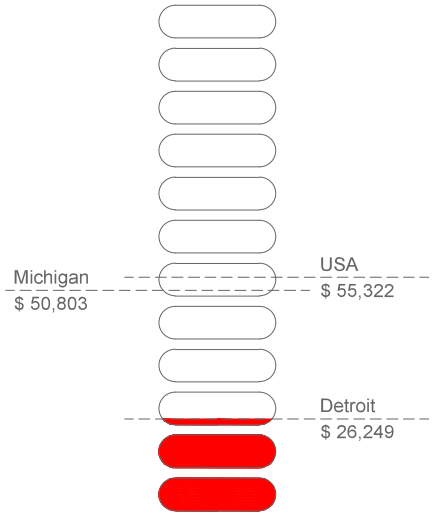


Figure 3.12 Percent Population Living Below Poverty Line (Doc 04- pg 60)
Drawn by Author
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

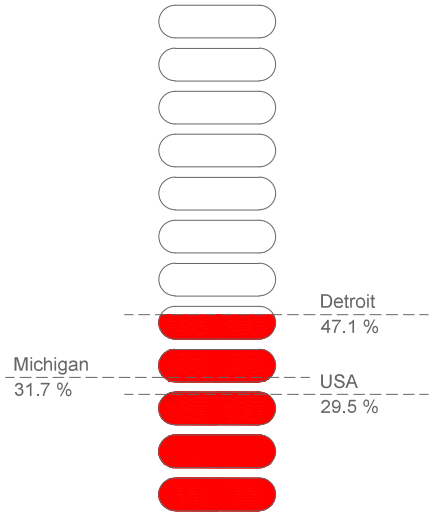
Due to concentrated poverty, many housholds within the city of Detroit are on various forms of financial assistance programs, public assistance income, social security, retirement income and food stamps. According to 2016 census, Detroit had a median family income of $ 26,249 which is roughly half the Michigan and U.S. median houshold income levels.

As a result of low annual income, 47.1 % families in the city are receiving Public Assistance Income which is provided to families with individuals 65 or older with a physical disability and limited income and resources.Along with this, 40.3% families received Food Stamps in 2016 *(Fig 3.13, 3.14 and 3.15)* to be eligible for receiving food stamps, a family of four cannot earn more than $ 31,240 annually.

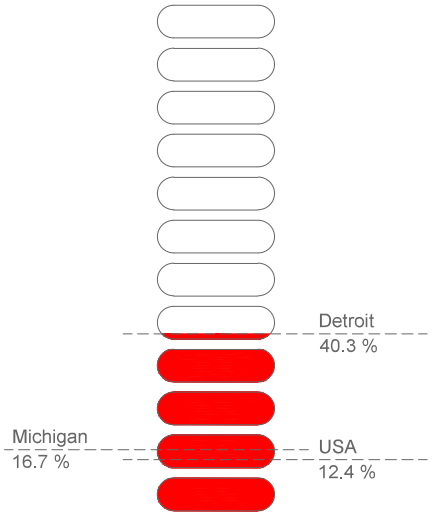
The numbers for public assistanc and food stamps are well over the State and National figures *(fig 3.14 and 3.15)*. Quite a few areas within census tracks overlap for population on high dependency on the assistance programs indicitive of extreme poverty at thoese loactions. What's also notable is, that these locations are closer to mid town and CBD. Intersting to note is that a four-mile deep zone across the north, right long 8-Mile Road, and slight east and west borders is showing an economicially stronger zone in both maps.



Median Household Income
in 2016



Families Receiving Public
Assistance Income
in 2016



Residents Receiving Food
Stamps in 2016

Figure 3.13. Income and Poverty Statistics. 2016 Detroit, State of Michigan and USA
Drawn by Author
Source: (United States Census Bureau n.d.)

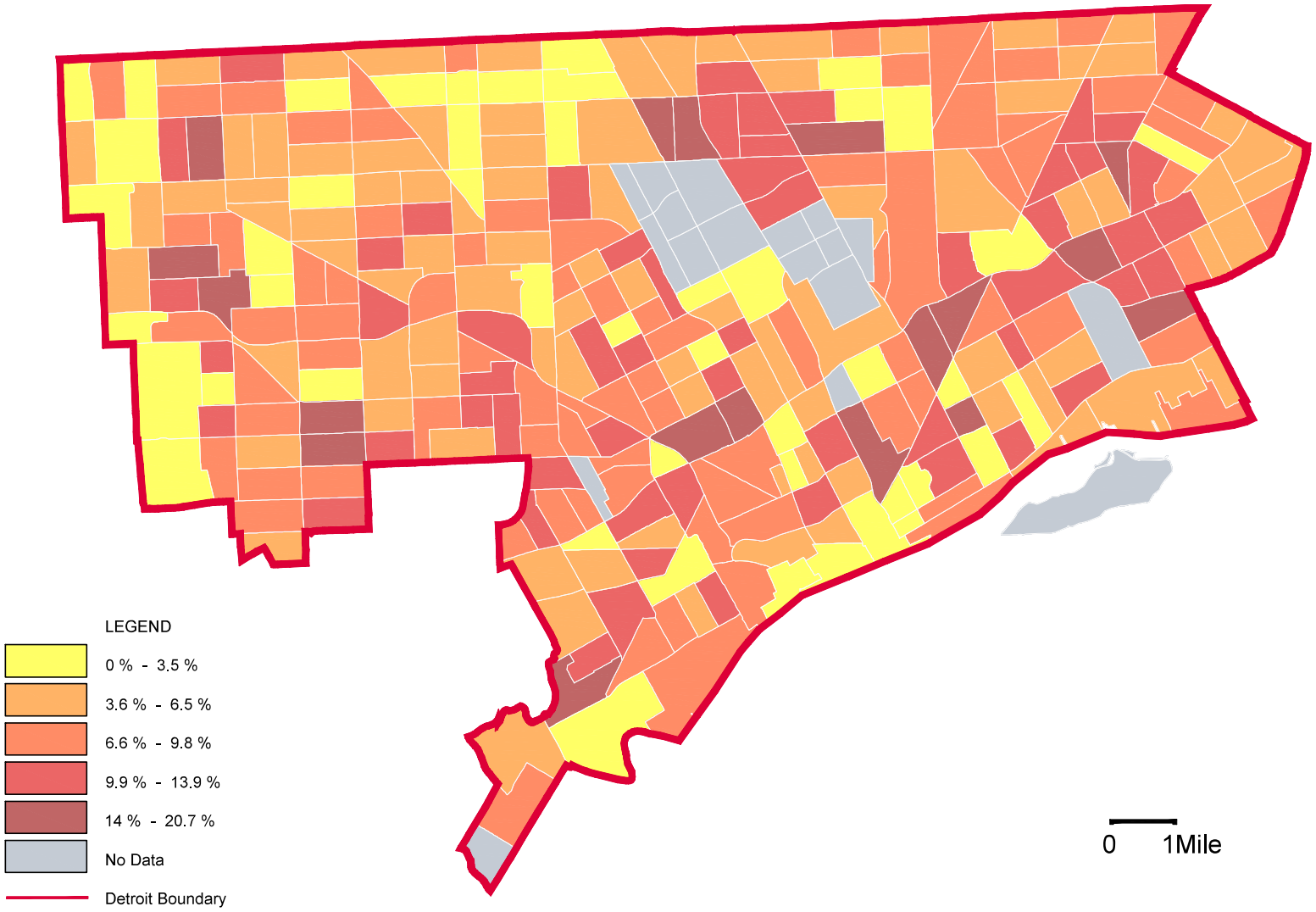


Figure 3.14. Households on Cash Public Assistance in 2015 Detroit.
Drawn by Author
Source Data: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

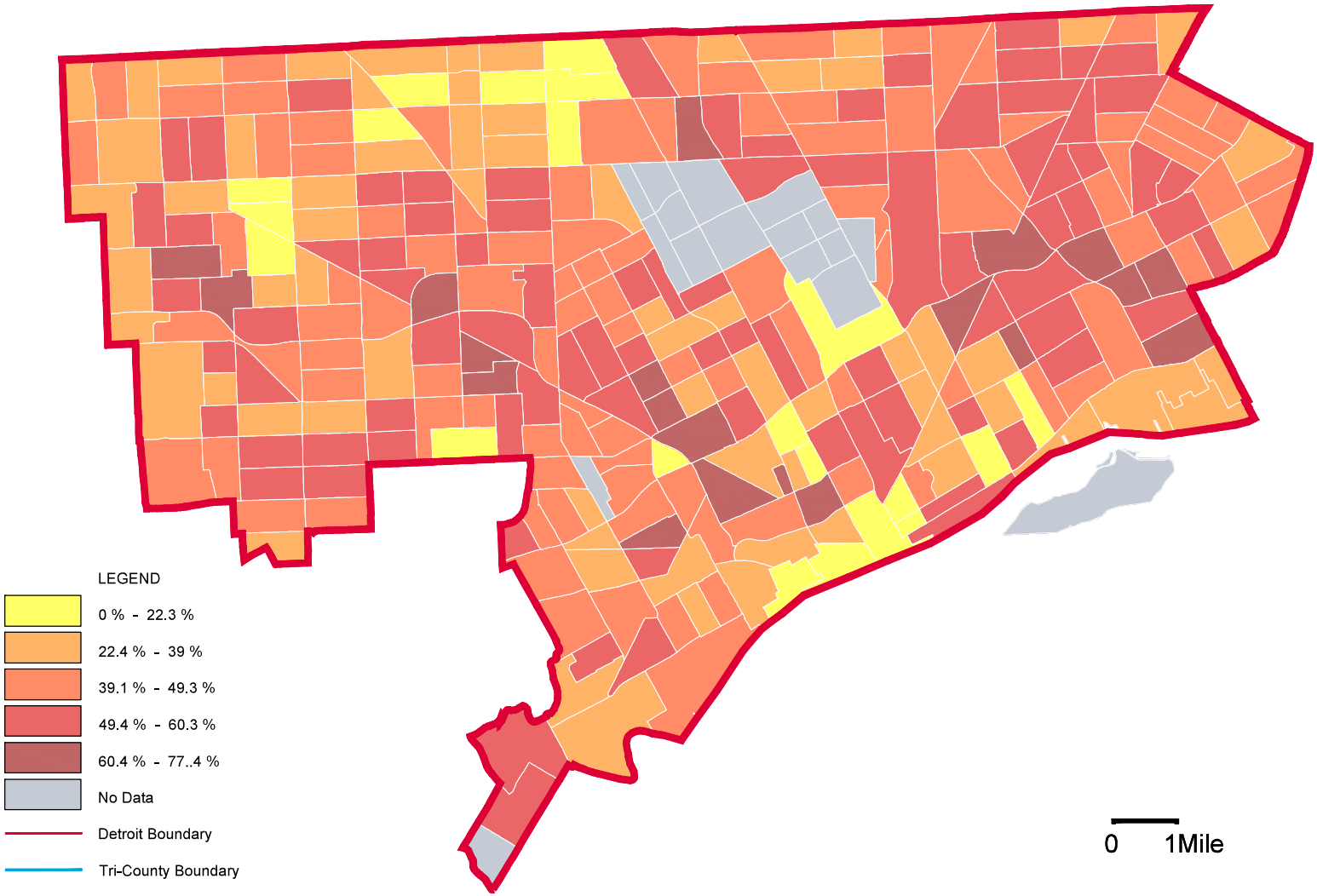


Figure 3.15. Households Receiving Food Stamps in 2015 Detroit.
Drawn by Author
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

The city is impacted by poverty just the same for all ethnicities. This is revealed through a keen analysis of ethno-racial groups on food stamps as graphed by Statistical Atlas for 2013 census *(Fig 3.16).* The higher number of mixed, black and ethnicities other than Hispanic Asian and White is also because of the demographic make-up, afterall Detroit is predominantly black.

To analyze the type of households and age groups most vulnerable to poverty, the graph reveals that compared to State, most vulnerable individuals on food stamps are single moms, 34.1% vs. State percentage of 27.2%, persons on disability 49.9% vs. State percentage of 46.3%, persons over 60, 26.8% vs. State percentage of 26.3%, and those below poverty line 61.3% vs. State percentage of 52.79%, (Fig 3.17). According to Statistical Atlas, slightly fewer children are on food stamps, 48.5% compared to State average of 49.6 %, likewise married households are doing much better, 9.2% compared to the State average of 16.37%.

The City of Detroit and Wayne county overall has the lowest labour force participation rates as mapped by Wayne State University's, Center for Urban Studies. Even though the numbers are showing a de-cline in unemployment since 2016 to 2017 (Fig 3.18) Wayne county is still has the highest unemployment.

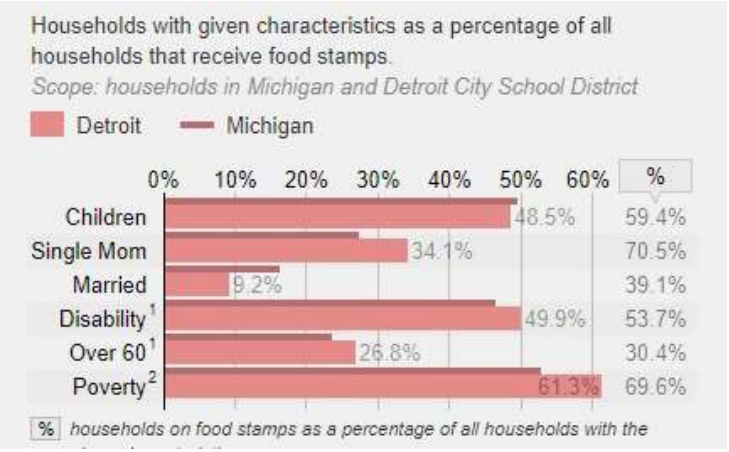


Figure 3.16. Ethnic Characteristics of Households Receiving Food Stamps. 2013, [22]
Source: Statistical Atlas, Detroit Statistics (2015)

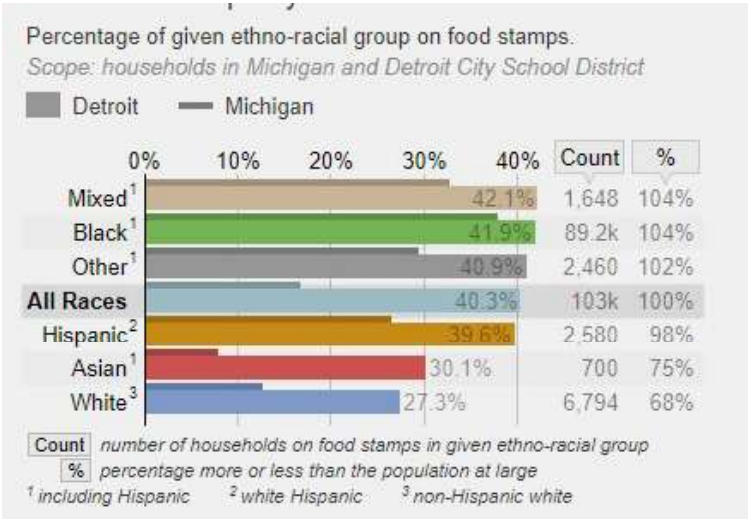


Figure 3.17. Household Receiving Food Stamps.. 2013, [23]
Source: Statistical Atlas, Detroit Statistics (2015)

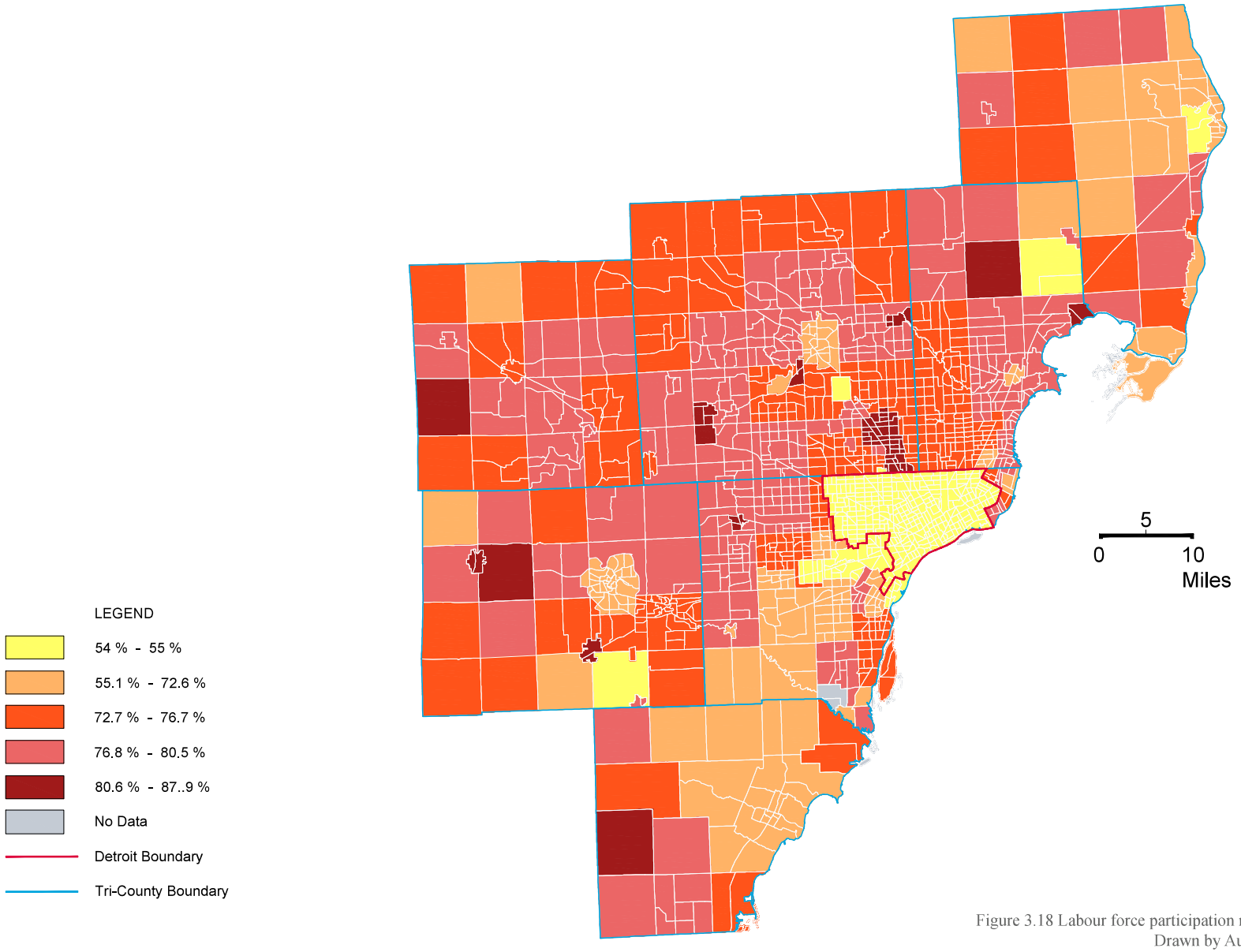


Figure 3.18 Labour force participation map.
Drawn by Author
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

According to Detroit Free Press, the auto industry is installing "collaborative" robots to boost production so as to remain competitive within global markets. The "co-bot" distribution across U.S. is uneven. According to estimates by a trade association located within Ann-Arbor, there are 250,000 robots in use across United States, out of which 15,000 industrial robots, approximately five times that of any other major city within U.S. The robots are mainly used for welding, painting and assembling parts, the very semi-skilled and skilled labour provided by the residents of Detroit. The auto companies say that due to its mixed nature, the rise of robots is expected to improve the production and help auto companies stay competitive while retaining a significant number of human employment. An M.I.T. and Boston University research claims that each robot per 1000 workers has led to unemployment of six workers. According to Wayne State University, from 2010 to 2015 a total of 840 industrial robots were added to Battle Creek area whereas its unemployment rate rose from 5.1 in 2010 to 11.7 in 2015,24 during the same period, as shown in Figure 3.19. This correlates with a drop in auto sales of the big three manufacturers for 2016-2017, as indicated in Figure 3.20.

Integration of automation within auto industry is furthering the economic turmoil in Detroit enhancing the already desperate conditions. As the employment opportunities fade in any culture, its impact can be seen in the rise of an alternative economy, which is rooted in the illicit activities and gives rise to illegal economy. This can be seen in Detroit where a growing inventory of abandoned buildings is viewed as resources, waiting to be harvested for cash (Fig. 3.21).

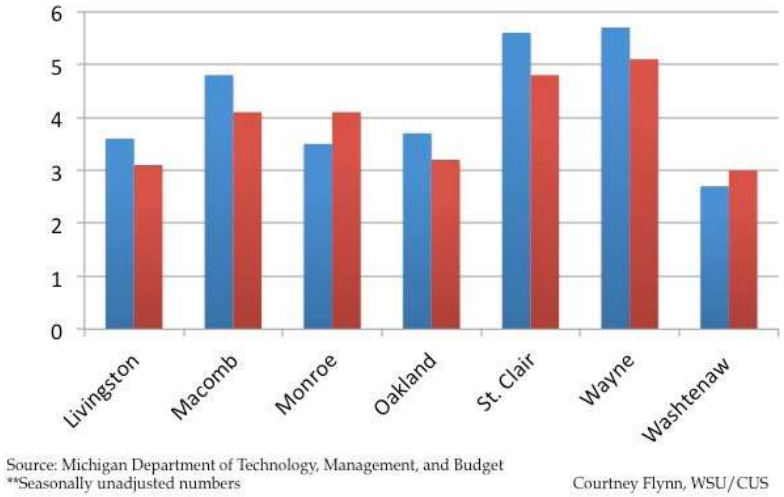


Figure3.19 Unemployment rates by county
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)

Figure 3.20 Percent Change in Overall Auto Sales for the Big Three
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)

Figure 3.21. A sign inviting scrappers to do no hassle business
Source: Philipp Oswalt, *Shrinking Cities: International Research, (2005)*
Photo: Scott Hocking, *Scrappers*, Pg. 470

— Caught within a bizarre cycle for survival, scrappers depend almost entirely on the abandonment and neglect of Detroit's landscape. They have found ways to enter and remove metals from majority of vacant homes and industries, often using only orphaned shopping carts to transport their spoils. By clearing pathways through debris, covering and bridging dangerous holes, and rigging rooftop pulleys, they have reaped and scavenged throughout the 140-square-mile city. [25] —

Source: Philipp Oswalt, *Shrinking Cities: International Research, (2005)*

Figure 3.22. Copper roof stripped by scrapers at Lee Plaza Hotel Roof.
Source: Scott Hocking, Scrappers, Oswalt, Shrinking Cities: International Research (2005), Pg. 478

Uneven Density and Scrap

Detroit's uneven density has bred a culture of cash-paid, informal economy. Scrappers see themselves as workers, not mendicants or tramps. They work long, night shifts to harvest metals such as copper, aluminum siding, nickel, brass and cast iron. Most of the harvested metals are sold to middlemen before dawn for less than a dollar per pound. Detroit's informal economies survive with the impetus to make a quick dollar without hassle or questioning *(fig. 3.22)*. Although, arson and scrapping activities accelerate building deterioration and promote blight, the imaginations of the users continue to create a new purpose for these spaces. Andrew Herscher in his book, *The Unreal Estate Guide to Detroit*, states the unimaginable extents of creative property uses. This creativity is stemming from the new cultural, political and social desires intersecting with the freeing of the mindsets from the capitalist viewpoint of value systems.

Crime and Poor Living Conditions

Mayor Duggan is following through on his promise of demolitions, as mandated by the 2014 bankruptcy act. Vacant-house auctions by Detroit Land Bank, and nuisance-abatement lawsuits in specific neighborhoods are in effect, but it seems it is little too late for the generations who have grown to see a culture of de-valued buildings harvested for personal gain. The demolitions of open and vacant structures is expected to make neighborhoods safer for a city riddled with gang and drug activity. With fewer vacant structures to burn 'Devil's Night', where abandoned structures are set ablaze as is seen in the next section, could be a thing of past.

Detroit's hostile urban environment converged with Halloween traditions resulting in October 30, being known as the Devil's Night in Detroit. This tradition has become infamous around the world earning Detroit the title of being the "Arson Capital" of the Nation. In 1983 Detroit had 297 fires, the following year to be topped up to 819 fires over a three day period. Investigations have revealed gangs burning down the rival drug-houses to insurance frauds by cash strapped residents. In 2017, firefighters put out 21 fires at Halloween. This drastic drop in arsons is a result of changing the public dialogue from 'devil's night' to 'angel's night', where as many as 6,000 volunteers patrolled the streets and strict curfews were put in place for minors age 17 or under, to be inside after 7 pm.[26]

Crime, as seen in Figure 3.23 statistics is still an uphill battle for Detroit. A city where lack of safety and poor education is two of the main reasons for population decline. According to FBI, Detroit has maintained its ranking as the most violent big city in America in 2016.[27] Altough the FBI statistics are contested by the local police who believe the crime has gone down, the U.S. Census data still affirms that violent crime in Detroit is over six times higher and murder rate is nine times higher than the U.S. crime rate for 2016.

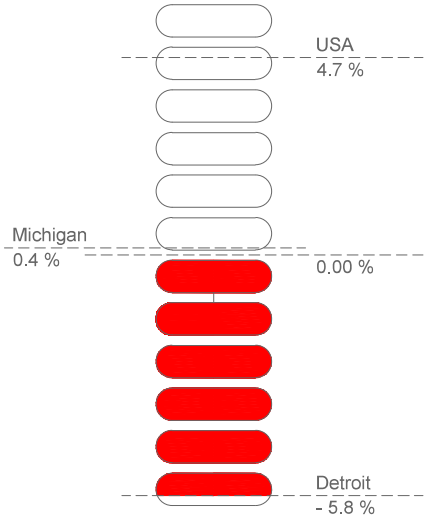
Michigan population grew by 3% in 2016-2017, according to most recent numbers, however the population continued to decline in Detroit. Mayor Mike Duggan holds the schools responsible for this situation, stating that families with children are moving out of Detroit,

—The reasons that people choose to use Devil's Night as an excuse for arson are numerous and varied. The Fire Department categorizes arson simply by motives: revenge, juvenile arson, arson to conceal a crime, attempted arson, pyromania, and fraud. [28] *—*

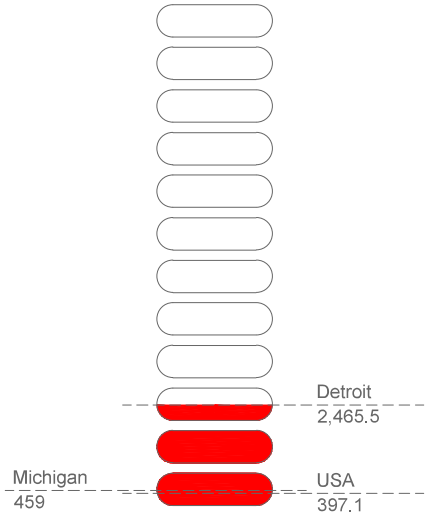
Source: Philipp Oswalt, *Shrinking Cities: International Research, (2005)*
Photo: Toni Moceri, *Devil's Night*, Pg. 302

—Racial isolation aggravates poor social and economic conditions, which lead to desperation and its manifestation (drugs, crime), which leads to more isolation. As explained more contingently by William Julius Wilson, when society isolates racial minorities and low-income people within inner cities, a "concentration effect" takes hold. When only low-income workers or welfare recipients live in a neighbourhood, children have no positive role models. Their isolation in ineffective school systems can make it appear education offers no way out. The lure of drugs and crime becomes irresistible as legitimate means of employment fade. Marriage fragments – or never takes place – as males lose earning power. And all of these problems can cause more isolation.[29] *—*

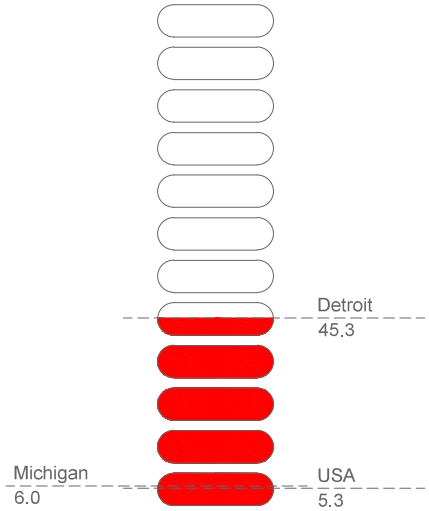
Source: June Manning Thomas, *Redevelopment and Race: Planning a Finer City in Postwar Detroit* (1997) Pg 212



Population Percent Change
April 1, 2010 to July 1, 2016



Violent Crime Rate
in 2016
FBI Reported Crime Rate
Per 100,000 Residents



Murder and Non-negligent Manslaughter
in 2016
FBI Reported Crime Rate Per 100,000 Residents

Figure 3.23. Crime Rates 2016 and Population Change
Source: (United States Census Bureau n.d.)
Drawn by Author

stating “We have got to create a city where families want to raise their children and have them go to the schools.”.[30]

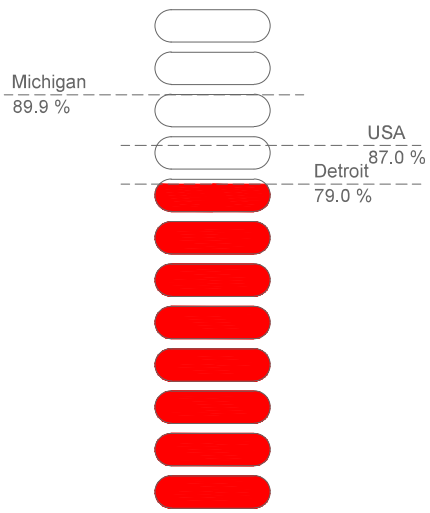
After consistent decline of Detroit Public School performance, Michigan opted for a competitive approach and introduced charter schools to residents. Instead of nurturing a healthy competition, the excess of school options, poor performance of charter schools and their aggressive marketing pleas intensified the education fiasco. Detroit charter schools enrolment is second only to New Orleans post Hurricane Katrina in the U.S. The for-profit charter school companies operate 80 percent of the schools in Michigan and are creating plenty of choices but none that would truly produce college ready students.[31] U.S. census corroborate the resident and student experience and narratives as cited in Figure. 3.24. A look at Detroit high school youth behavioral study,[32] presented in Figure 3.24, shows the plight of Detroit schools. The numbers for Detroit in most categories are clearly much higher than the Michigan and U.S. figures. Most astounding figures are for threat with weapon, injury and physical altercations while on school property, little wonder that Detroit students feel roughly twice as unsafe as students elsewhere. Detroit children are also roughly 1.2 times not likely to attend physical education classes and 1.3 times as likely to be overweight compared to national figures. Detroit also has a high school dropout rate is roughly twice that of national rate, which coincides with much lower educational attainment at high school or bachelors level,[33] as shown in Figure 3.25.

Economically most vulnerable groups are single mothers, persons over 60 and those on disability. It also indicates that the city needs to find alternative ways to improve its economy to recover from over-all poverty since automation is further intensifying the job qualification for the low skilled. The ongoing process of blight removal could assist in reducing property crime, however murder and other violent crime climbs higher, proving it also does not help with other forms of crime that get a boost due to low and fragmented densities. Continued decline further intensifies the Detroit school crisis due to continually dropping enrolments and poor education standards where two school systems have created a divisive academic environment. Staying in schools is difficult for students when they realize that they are neither job-ready or college-ready. The second indicator of prevalent poverty and deteriorating economic situation manifests in unhealthy environment for the residents.

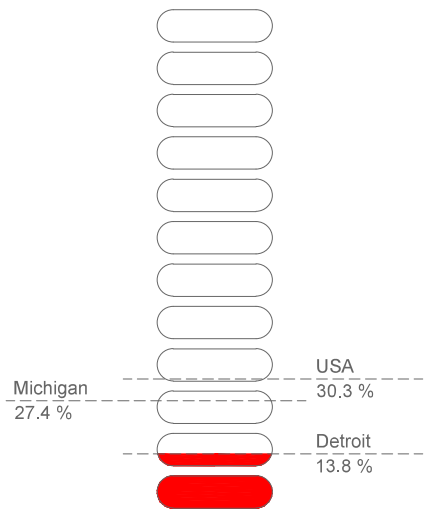
Detroit, MI, High School Youth Risk Behavior Survey, 2015

Question	Detroit %	Michigan%	US %
Have carried a weapon to school:	4.6	3.6	4.1
Were threatened or injured with a weapon on school property	13.9	6.6	6.0
Have been in a physical altercation:	35.2	20.4	22.6
Have felt unsafe at school:	11.5	5.8	5.6
Experienced sexual dating violence	8.8	11.9	10.6
Have felt sad, hopeless, or suicidal:	30.6	31.7	29.9
Attempted suicide	16	9.2	8.6
Currently used tobacco	25.5	29.1	31.4
Currently used marijuana	22.6	19.3	21.7
Have been sexually active before age 13:	9.1	3.1	3.9
Have had 4 or more sexual partners:	12.5	8.8	11.5
Are overweight:	21.6	16.0	16.0
Did not attend physical education classes on all 5 days	83.4	77.6	70.2

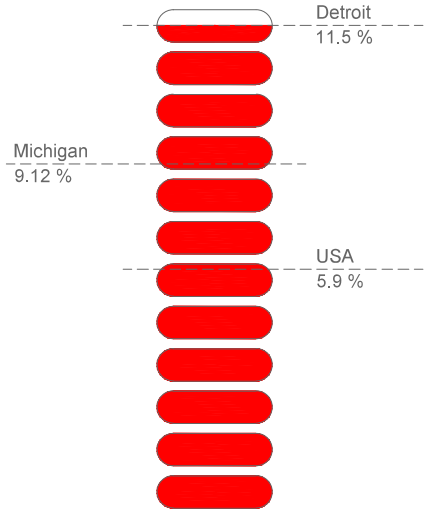
Figure 3.24 Detroit Youth Risk Behavior Study, 2015 [32]
Source: http://nccd.cdc.gov/youthonline/App/Results.aspx?LID=DT



High School Graduate or Higher
Percent of Persons Age 25 years +
2012 - 2016



Bachelor's Degree or Higher
Percent of Persons Age 25 years +
2012 - 2016



High School Dropout Rates
2014-15

Figure 3.25. Educational attainment 2016
Source: (United States Census Bureau n.d.)
Drawn by Author

Detroit's abandoned industrial and aged residential buildings whether ruined or subjected to arson present a serious case of brownfield remediation. Industrial soil contamination is caused by lead in gasoline, paint and plumbing. This was raised as a special concern, after a health check was performed on Detroit school children and almost 17,000 showed elevated lead levels and symptoms of lead poisoning.

Industrial sites with unmaintained and aged infrastructure is one source of lead contamination. Lead was used as an anti-knock agent in gasoline, and several aging manufacturing sites are leaking the contaminant in the soil. Close proximity of industrial and residential sites within poor neighborhoods enhances exposure of little children to dust, from contaminated soil. The other source of lead contamination includes lead based paint and plumbing used in old housing stock, still in use by residents who cannot afford to relocate to healthier neighborhoods. Elevated lead levels are linked to permanently reduce cognitive capacities. Pregnant women, their unborn child and children under three are most vulnerable to sustain harm to neurological development.

Five zip code areas contained more than a hundred children with elevated blood lead levels greater than 5ug/dL, as indicated through mapping of data provided by Michigan Department of Health and Human Services in 2015. Center for Disease Control uses 5ug/dL EBLL in children as a benchmark for public health action. The maps produced by Wayne State University-Center for Urban Studies, shows strong correlation between the location of the five zip codes *(Fig.3.26)* and the location of facilities permitted to emit Lead *(Fig 3.27)*. [34]

Detroit Summer, a youth program has taken up the task of educating school children to perform simple soils tests and then initiate organic decontamination measures once a brownfield is discovered. Simple and effective steps are coordinated at community level by planting alfalfa and sunflower plants that absorb soluble heavy metals. [35]

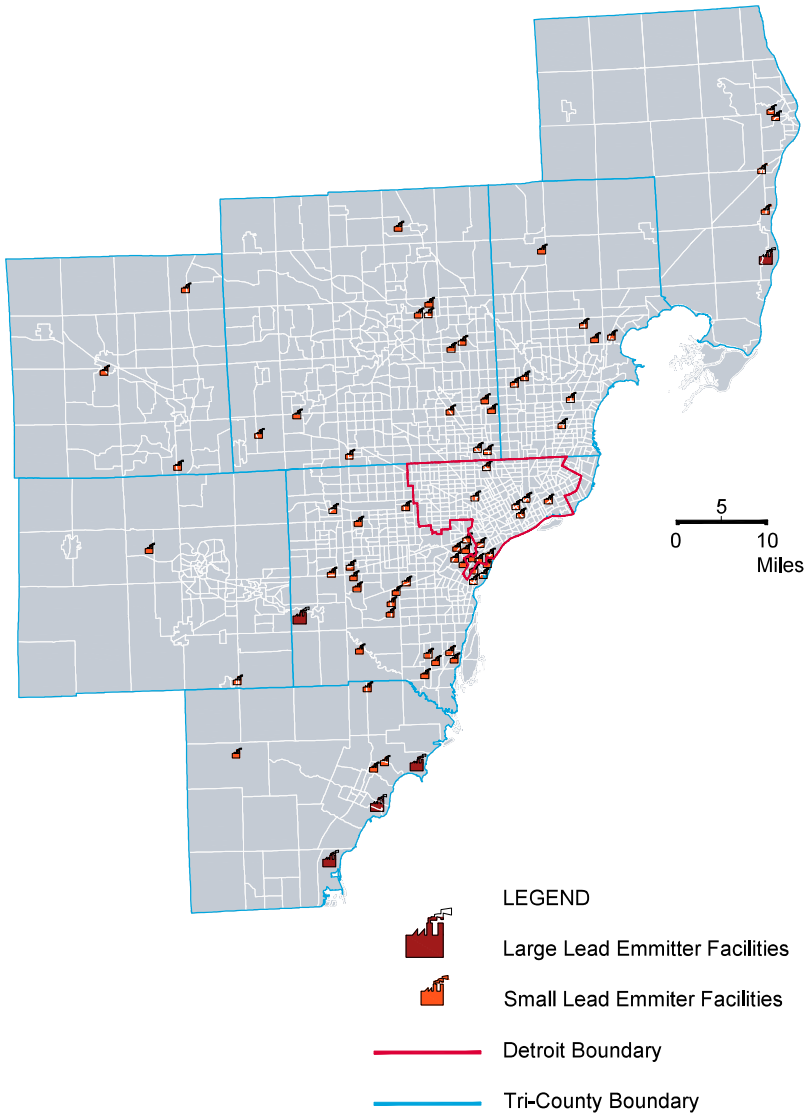


Figure. 3.26 Southeast Michigan: Lead contaminated sites. [34]
Drawn by Author
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

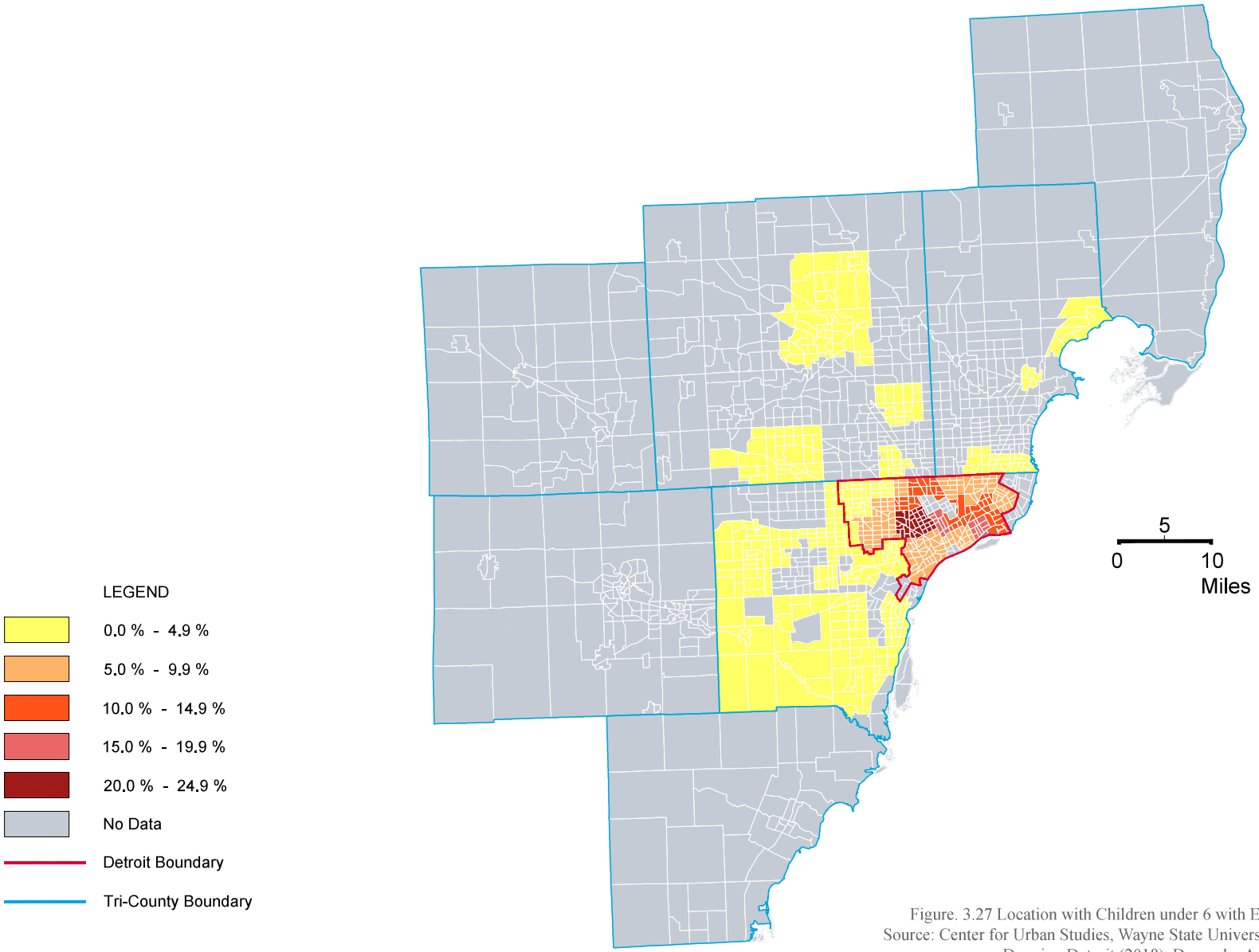


Figure. 3.27 Location with Children under 6 with EBLL
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Racial disparities and intense poverty play a big part in maternal deaths. Detroit's maternal death rate is three times that of USA and experts blame uncontrolled chronic health conditions more common to poor residents deprived of health insurance and access to healthcare.[36] Many believe that pregnancy related deaths are a thing of past, however as hospitals started tracking and reporting maternal deaths, a much grimmer picture has emerged. In 1987 national pregnancy related death rate stood at 7.2 deaths per 100,000 live births, this number rose to 17.8 in 2009, as the data became available. Reporting prenatal deaths is still not a standardized practice across U.S. however a number of agencies are gathering data by matching prenatal death records.[36]

Michigan ranks eighth highest for maternal deaths, a ranking largely due to Detroit. According to Michigan Department of Health and Human Services data, from 2007 to 2013, Detroit had 44.4 per 100,000 pregnancy related deaths whereas, Wayne County had only 9.5, when excluding Detroit, in the same time period, *(fig.3.28)*. [37]
Health professionals advise that to enhance maternal mortality, a mother needs to be in good health prior to getting pregnant.

—The social, economic, and age-related vulnerabilities included in these analyses encompass multiple indicators of vulnerability. Racial, ethnic, and socioeconomic characteristics of areas have been previously associated with proximity to hazardous waste facilities and air pollutants (Bullard et al., 2007; Collins et al., 2015; Mohai et al., 2009). These vulnerabilities may operate through housing discrimination and/or limited access to economic resources which shape the ability to buy or rent homes in other communities with lower environmental exposures.[38] —

Source: Source: Amy Schulz et al., Social Science Research by Cambridge Core, *Du Bois Review: Social Science Research on Race*. (2016)
(Collins et al., 2015; Roscigno et al., 2009; Seitles 1996).

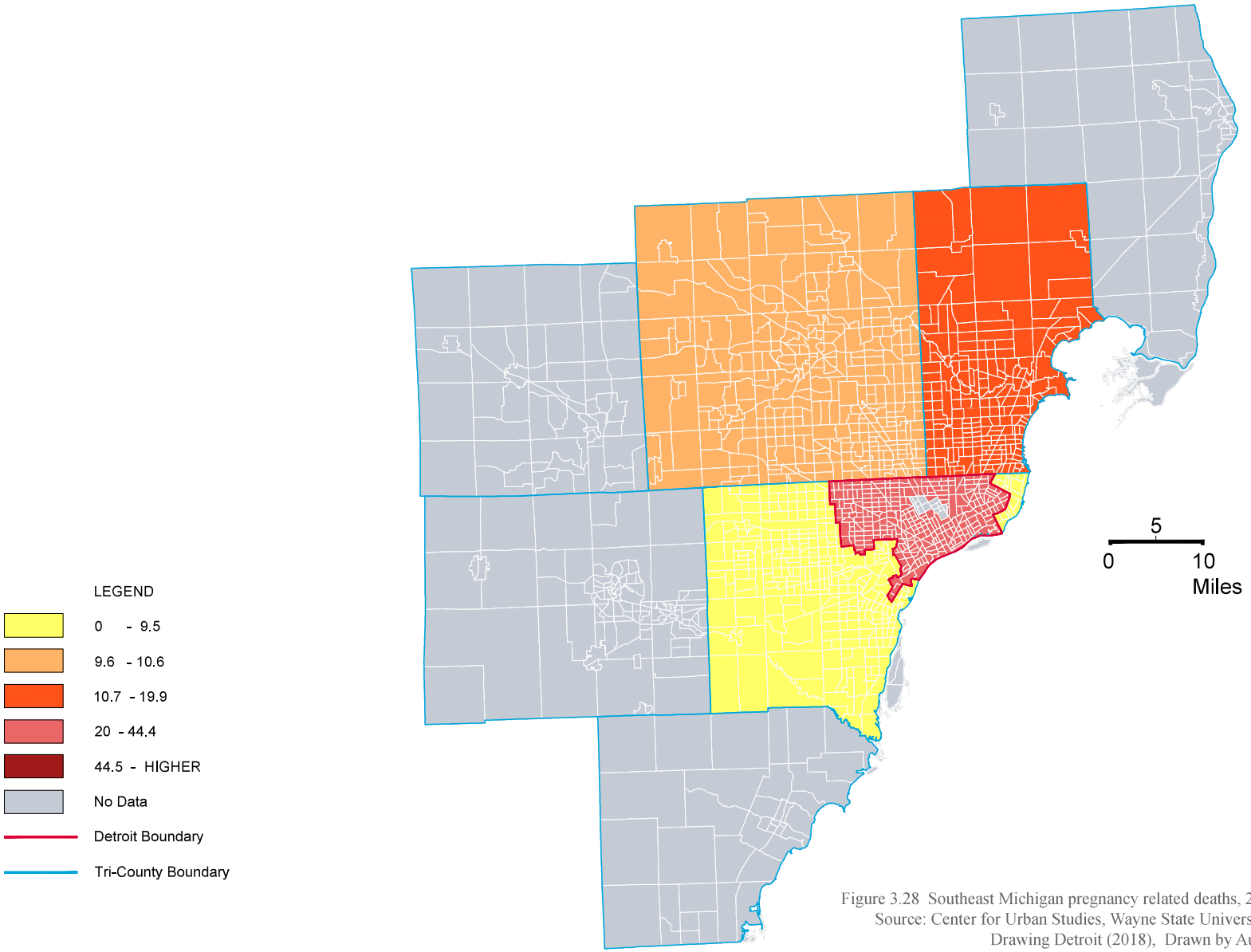


Figure 3.28 Southeast Michigan pregnancy related deaths, 2013.
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

An independent study lead by Amy J Schulz, Associate Director, Center for Research on Ethnicity, Culture and Health at University of Michigan, links the environmental exposures to economic and age-related vulnerabilities. In her publication “Race and the Distribution of Social and Physical Environmental Risk: A Case Example from the Detroit Metropolitan Area”. Here, Schulz concludes that combined risks from physical environments, the health risks and socioeconomic vulnerabilities are borne disproportionately by the people of colour. Her study mapped the environmental hazards and health-risk indices geographically across census tracks and analysed it with overlays of socioeconomic composition of residents to determine cumulative vulnerabilities. Her study conclusions prove that in metropolitan Detroit, the economically disadvantaged communities are mostly concentrated in environmentally high risk areas, such as defunct industrial sites and railway corridors. The high risk land-use when mapped literally outlines the industrial facilities and service corridors, *(fig 3.29)* where residents are at higher health risk due to air pollutants. An interesting observation here is that the areas less impacted by environmental hazards are also economically stronger *(fig 3.14 and 3.15)*.

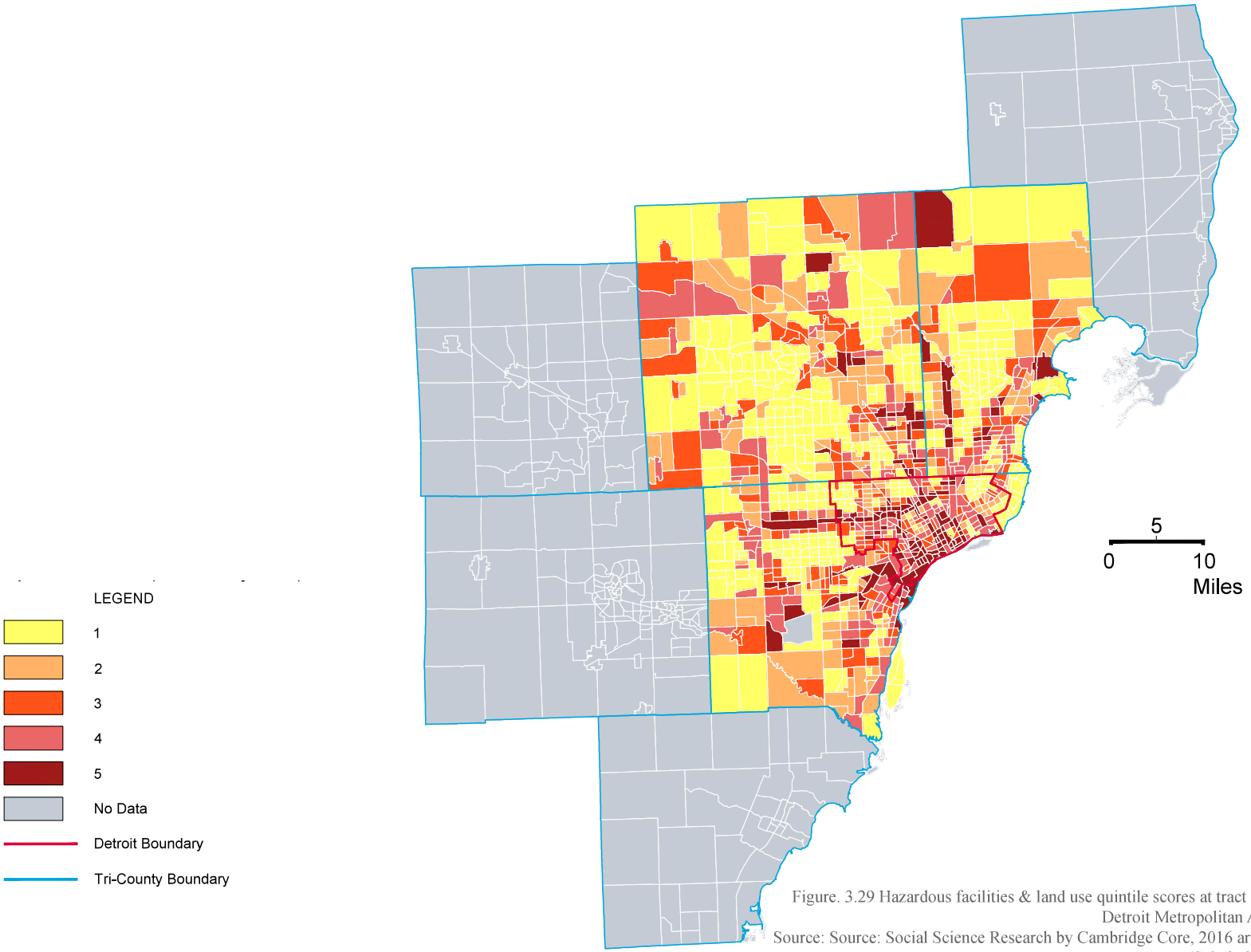


Figure. 3.29 Hazardous facilities & land use quintile scores at tract level Detroit Metropolitan Area.
Source: Source: Social Science Research by Cambridge Core, 2016 article. (Schulz 2016)
Drawn by Author

Uneven Density and Vacancy

Due to a high vacancy trend, the vast under-population of the City of Detroit today creates an imbalance for its municipal services, mainly created due to a low tax base to a very high spread of service area. The municipal services become underused, yet their maintenance is a liability for the municipality. This imbalance has partly contributed towards Detroit's municipal bankruptcy. The diminished capacity of the municipal services further sends a positive feedback to rampant crime and illicit activities much easier to carry out in low density neighborhoods due to fewer involuntary vigilance controls. John Gallaghar of Detroit Free Press quoted Allan Mallach, research director of the National Housing Institute in Maplewood, N.J., that Detroit needs only 50 square miles of its land to house its current population. Allan suggested that the remaining 89 square miles could be used for commercial farming and eventually beyond agricultural use.[39]

Interestingly, the growing void zones as seen in Figure 3.30 overlaps with environmentally high risk and economically inviable areas as highlighted in the studies by Schulz, referenced in figure 3.29 earlier.

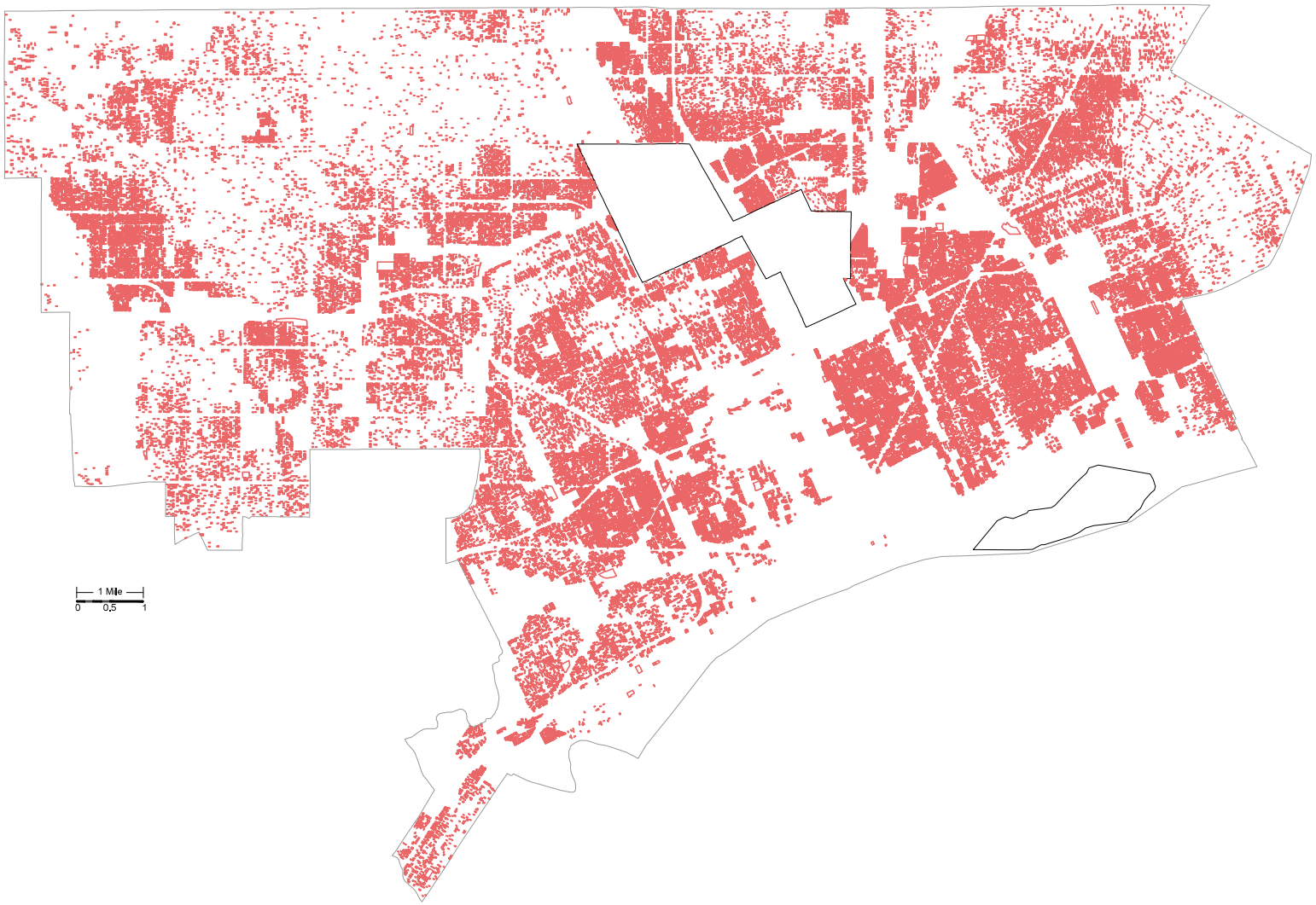
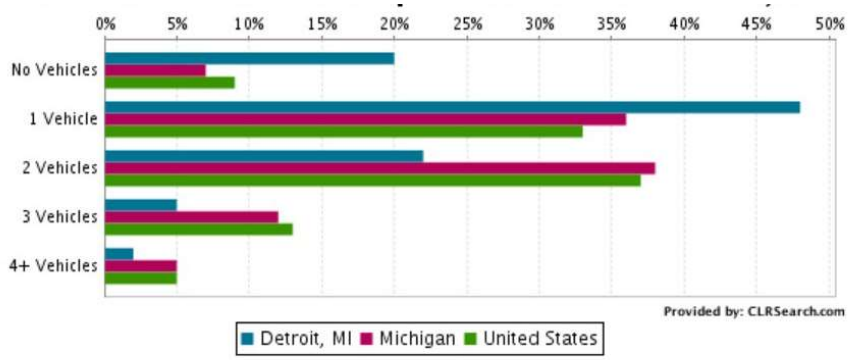


Figure 3.30 Detroit vacant parcels. Current vacant lots and parcels with current and future demolitions
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

The Auto-centric Large Urban Grain of 20th Century Detroit

Detroit which has total area of roughly 139 sq. miles had a population of 683,443 in 2016, according to US Census Bureau. [40] The periphery neighborhoods in Detroit emerged during the prime auto manufacturing period. During this time, the overall city growth was rapid, and mainly guided by industrial growth. Land use and the residential grid aimed at quick annexation of lands in residential areas surrounding the industries. Planning tools were few and planning as discipline was young. These factors resulted in a large, one mile by one mile street layout used in the Jefferson grid, the housing lots are configured by dividing up each half mile by half mile square into four by eight residential streets. This generated housing blocks of roughly 30 to 32 parcels each measuring 20 by 60 feet on average. *(fig 3.32)*

This created a very auto-dependent city. In general, distance of quarter mile takes about a five minute walk. A large urban grain is a major constraint to city that has, roughly speaking 21% families without a single vehicle and availability of 1.60 vehicles per family on average. In comparison US national average for vehicles per family is 2.2.[40] *(fig 3.31)*



2012 Number of Vehicles per Household	Detroit, MI	Michigan	United States
Households, Median Vehicles	1.60	2.20	2.20
No Vehicles	20.84%	7.68%	9.08%
1 Vehicle	48.68%	36.08%	33.50%
2 Vehicle	22.54%	38.03%	37.45%
3 Vehicle	5.93%	12.93%	13.98%
4+ Vehicle	2.01%	5.27%	5.99%

Figure. 3.31 Vehicle ownership in Detroit, 2012.
Source: Center for Urban Studies, Wayne State University – Drawing Detroit (2018)

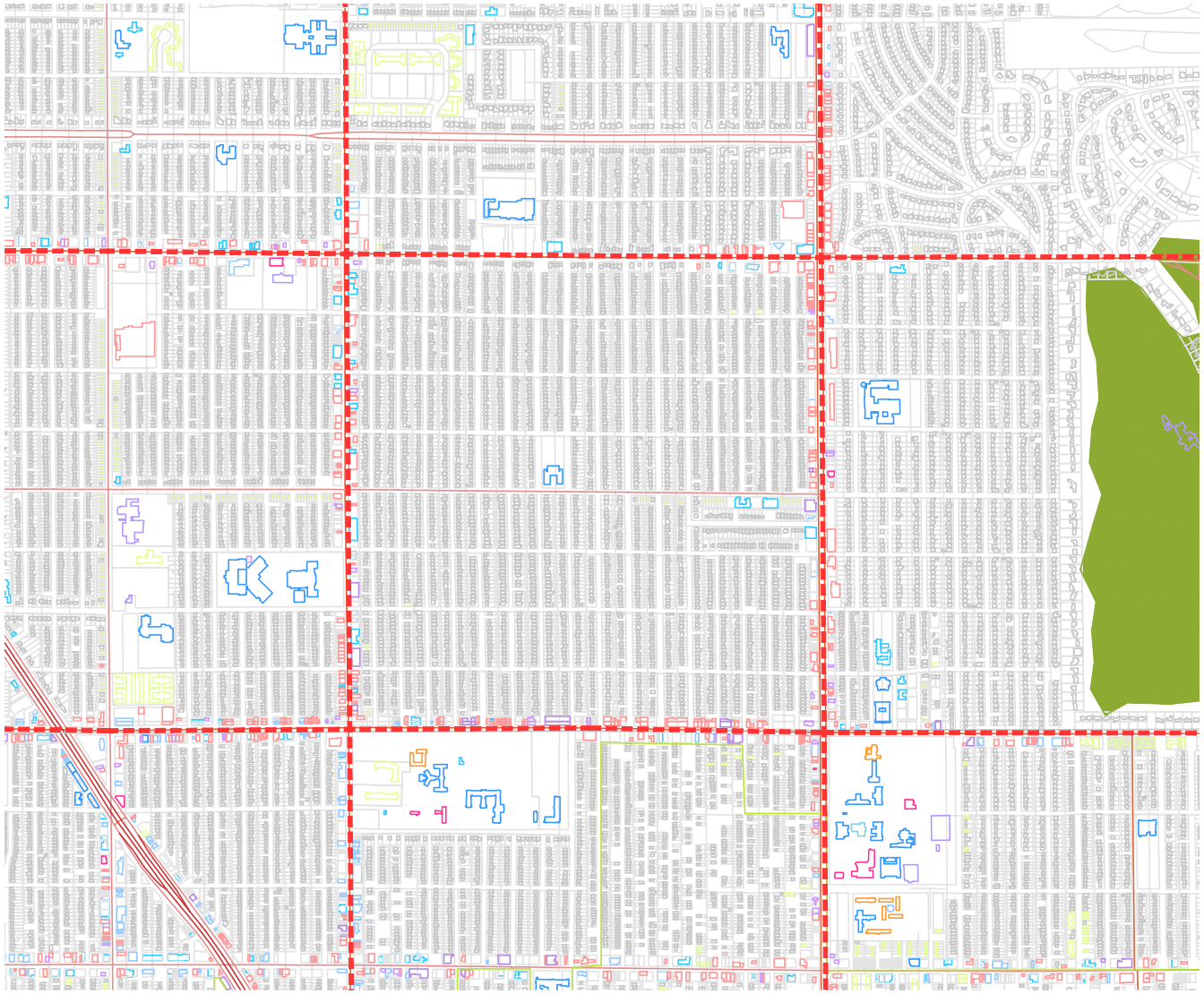


Figure. 3.32 Typical one-mile by one mile residential block
Drawn by Author.
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Housing and local streets in the mid-town and near the periphery neighbourhoods were developed ahead of master plans. Today it is easy to see the impact of developing without a master plan in the allocation of Detroit's neighbourhood land use and building typology. The city layout is devoid of a good and healthy mix of building typologies. The main streets, located along one square mile grids are lined with two or three story civic, commercial, office and light industrial buildings. Every second or third half-mile square has either a very large park, public amenity such as a church, school or a library, or municipal service buildings such as, police or fire station. Most of the commercial facilities are located an average of 0.2 miles from households, however independent mainstream grocers are located, on average two to three times this distance. The largest percentage of building typology found in the residential neighbourhoods are the single-family detached dwellings as seen in Figure 3.32.

Detroit has very few supermarkets today, pushing the residents to rely on local convenience stores, liquor stores and other non-mainstream grocery stores for daily food supply. This aspect was studied by June Manning Thomas in her book *"Mapping Detroit: Land, Community, and Shaping a City"*;[41] where non-work related trip index is at 0-24 for commercial centers within Detroit. This proves that periphery neighborhoods have a greater dependency on nearby suburban commercial establishments outside of Detroit, rather than the CBD. Figure 3.33 highlights yet another strong reason why boosting the economy within CBD has little, if any impact on strengthening the neighborhoods.

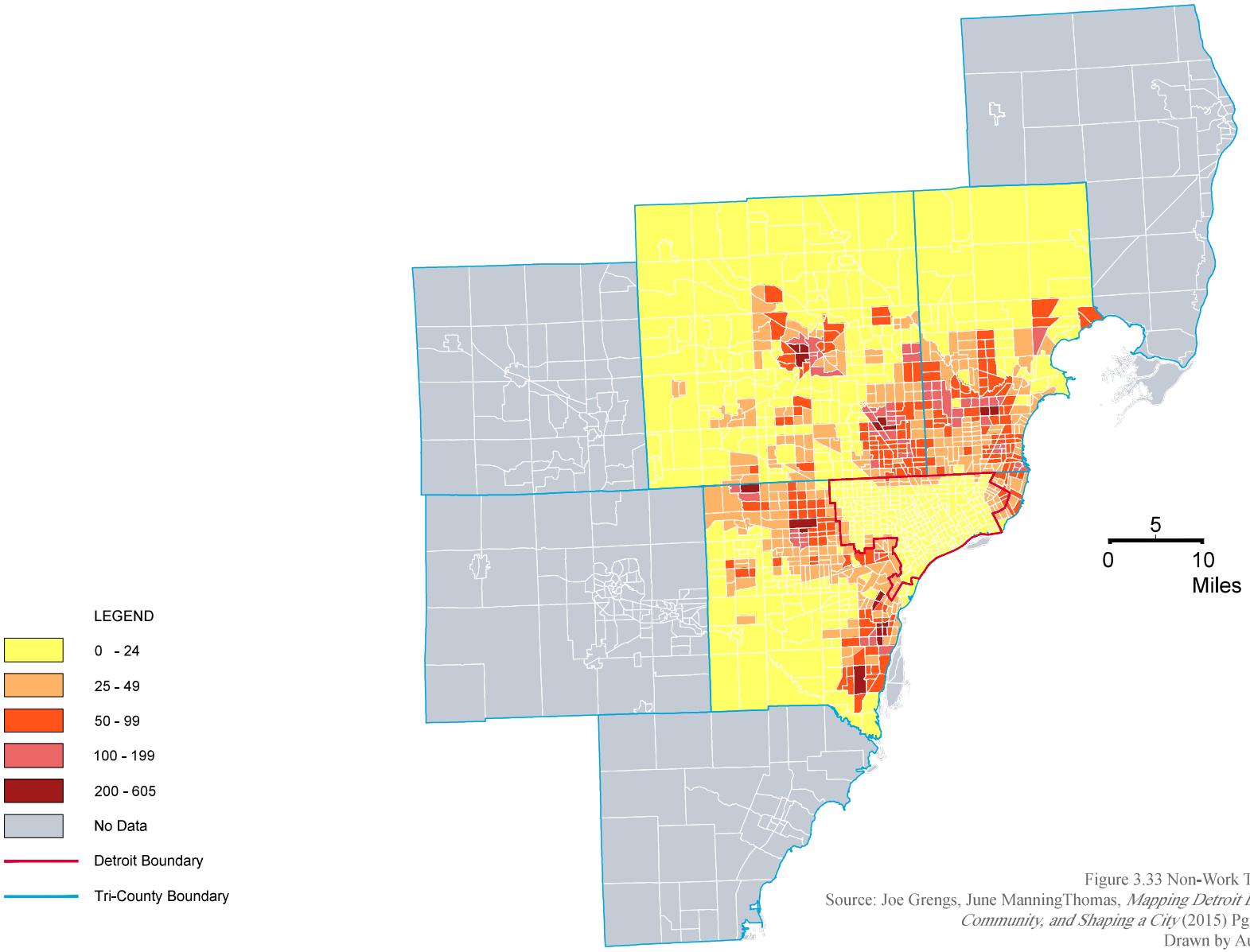


Figure 3.33 Non-Work Trips,
Source: Joe Grengs, June ManningThomas, *Mapping Detroit Land, Community, and Shaping a City* (2015) Pg. 110
Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Poor and Disappearing Housing Stock

The interior of the one mile grids are filled with two-story, single family detached houses. There are a few residential duplex and multi-unit three or four-story buildings. As estimated by Joe T Darden in '*Detroit – Race and Uneven Development'*, "seventy-five percent of the city's housing stock is at least 40 years old, and 30 percent is substandard."[42]

The City of Detroit was largely fully built-up by 1926, with the stretching of its boundaries to today's line. The housing stock is on average at least 80 years old and lacks modern life comforts offered by contemporary residential buildings. With a history of arson and building material scalping, a number of abandoned housing stock in neighbourhoods is structurally dangerous and unsound. Due to high poverty level, what is left of occupied houses are also in a state of severe to moderate disrepair and neglect. Maps provided by Data Driven Detroit, a community data center, shows the conditions of existing housing stock as of 2014. The houses in economically stronger neighborhoods, although old, are in a better condition compared to houses in mid-town zones where rampant abandonment and material scalping activities have further accelerated the housing stock deterioration as seen in Figure 3.34. The periphery neighborhood zones with houses in a better condition are higher in sales prices, along with the housing stock that has been repaired or replaced in the recent mid-town economic resurgence as shown in Figure 3.35.

—There are some wonderful houses in the city of Detroit, but their luxury represents the elegance of the 1920s, not the 1990s of early twenty-first century. Given a choice between a 1920s home, with it leaded glass windows and ornate woodwork, and a 1990s home, with its bigger bathrooms, central air conditioning, and attached garage, most home buyers will opt for the newer version without a moment's hesitation. —

John Gallagher, Detroit Suburbanization Philipp Oswalt,[43] Shrinking Cities: International Research (2005) Pg. 242

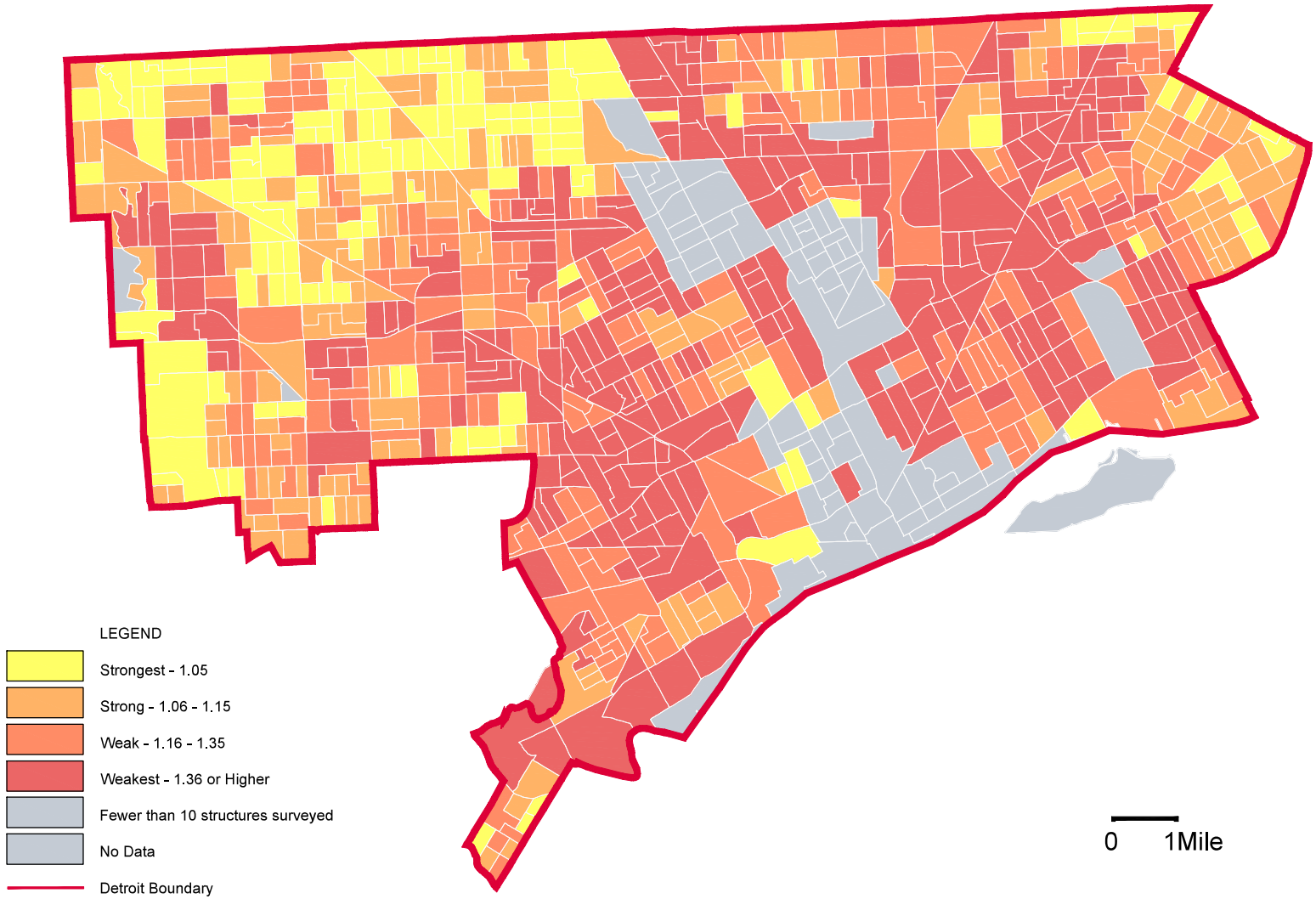


Figure 3.34 Average housing stock condition
Source: Data Driven Detroit (2014), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

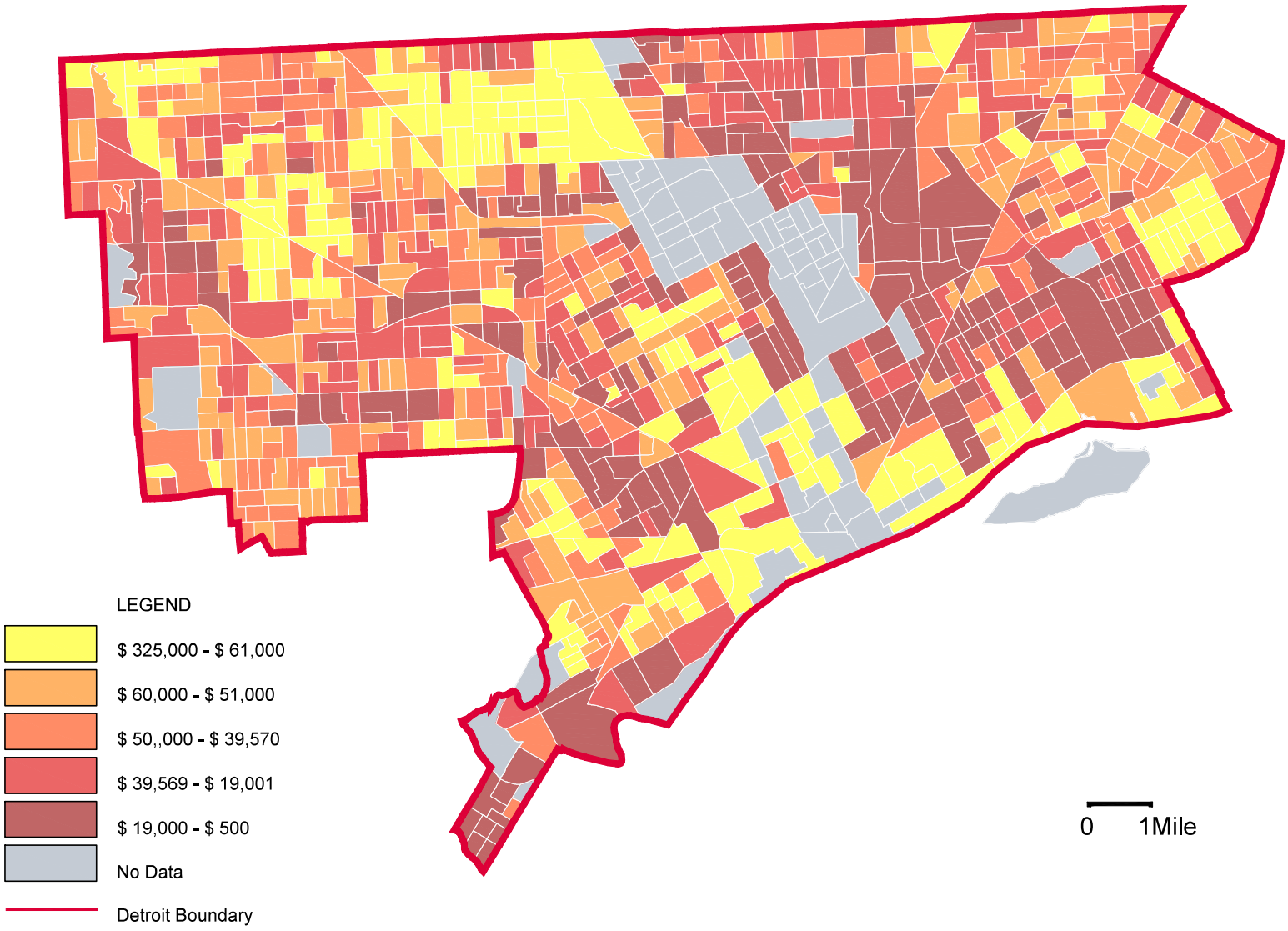


Figure 3.35 Median sales price for houses in Detroit.
Source: Data Driven Detroit (2014), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

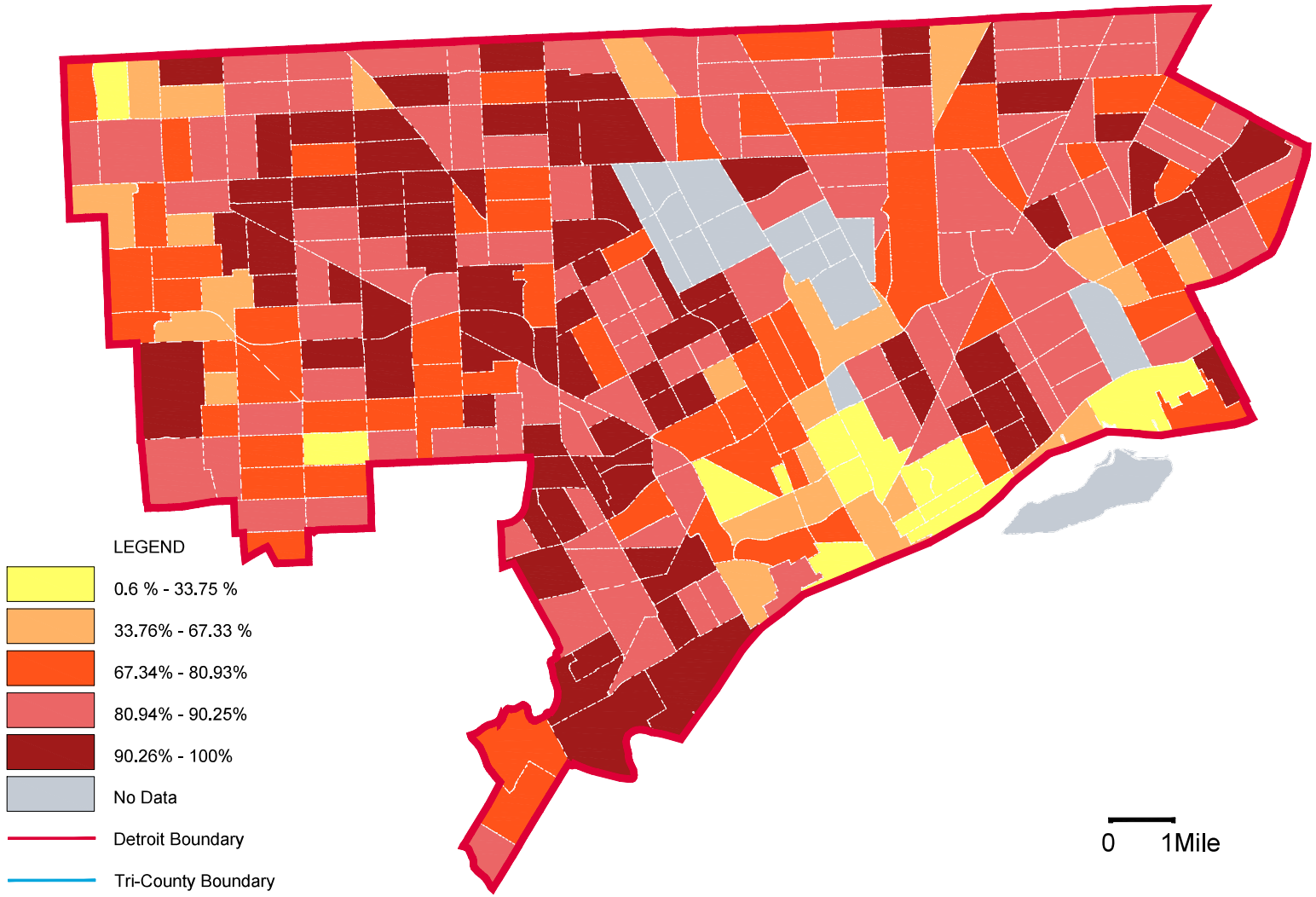


Figure 3.36 Percent of Houses Constructed before 1960 (Doc 04- pg 89)
Source: Data Driven Detroit (2014), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Most of the houses in Detroit were constructed prior to 1950. By the time city population hit its peak Detroit had very few neighborhoods remaining with any more un-built parcels, as seen in Figure 3.36.

On average the houses have a small footprint, around 2,000 square foot. Since these houses were built after the rise of automobiles, the streets patterns are conducive to car access and built with rear parking drives to the lots. In Figure 3.37 small houses are seen without garage doors facing the street, since the individual garages are built as accessory structures at the back of the houses. The accessory structures are accessed through a private rear drive aisle which is double-loaded and shared by just the houses on each block. In contrast to this, the suburban houses, though lack the historic charm of these houses, offer a lot more of life comforts and a better match to a contemporary lifestyle.

Aged and in disrepair this housing stock is certainly gone out of style. Architect Brent D. Ryan talks about user preferences for housing styles in Detroit, citing his conversations with the architect, Stephen Vogel. The Victoria Park residential project was located in a small area within Jefferson-Chalmers neighbourhood, located at south-east end of Detroit. At first, Vogel designed the townhouses using existing street grids and the developers rejected that idea, they wanted the suburban style house design. They asked for houses with attached garages, larger lots, front and side yards. The designs were revised to suburban style houses, with curving streets and a density of four units per acre as shown in Figure 3.38, another way for many black residents to live the new 'norm'lifestyle.[44]

Figure 3.37 Average housing condition in a Strong neighborhood in Detroit. Photo by Author

—While white suburbanites saw Detroit in 1990 as a dangerous ghetto and could not imagine living there, the city was less threatening for many black middle-class. Detroiters already living in the city. This emerging black middle class had the same lifestyle aspirations as everyone else, but they were unable to attain them in the city's deteriorated prewar housing stock. What these Detroiters wanted more than anything else, and what a suburban subdivision in the city could provide them, was a conventional middle-class lifestyle in the middle of Jefferson-Chalmers – a "normal" life in a city whose deteriorated landscape was otherwise very far from normal. For Detroit's black middle class, Victoria Park was a development whose time had come.—

Source: Brent D. Ryan, *Design After Decline - How America Rebuilds Shrinking Cities* (2012) Pg. 101

Figure 3.38 House in Victoria Park project within Jefferson Chalmers, South-East Detroit,
Photo Credit : Google Street-walk.

Figure 3.39 Side lot expansion, dotted lines show where owners have acquired vacant side lots. Aerial views show that the newly acquired lots are used for side garage and house additions.

The desires of current middle-class residents to live a 'normal,' suburban lifestyle is not awaiting future developments. The residents are acquiring vacant side-lots and increasing their domain. The cash-strapped municipality, welcomes and sanctions easy side-lot deed transfers for generating revenues. Municipality views it as a means to stabilize property values and solution to burdens of vacant property care, as seen in Figure 3.39.

The linearity of this approach, in a cause and effect mindset is not considering the socio-economic impact of such a decision, where the morphology of these areas in turn becomes less dense, coarse grained and auto-dependent. This also poses a greater barrier in future densification processes where current residents who prefer the low density lifestyles and have struggled to carve it out for themselves without moving, would potentially see fine-grained, densified surroundings with a 'not in my backyard' (NIMBY) approach.

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CHAPTER FOUR RECALIBRATING DETROIT

A DESIGN STRATEGY FOR INCREMENTAL GROWTH

4.1 Detroit Future City

Jobs, good schools, and growing property values are a few of the main drivers for urban expansion. Poor job market, and low property values in Detroit makes it unable to attract new immigrants or retain its own middle class residents. It is tough to talk about urban shrinkage or 'right sizing' a city when the element of humility to accept a defeating situation is just not there. The city officials and its residents need to have a frank and open dialogue about this. The years following Chapter 9, Municipal bankruptcy in 2013-2014, Detroit's officials have slightly modified their stance towards urban revival. Although their approach is still to 'bring back the economy', the hiring of Detroit Future City (DFC) was a reasonable attempt to retain professionals to devise a sustainable vision for the city. What's alarming is that the DFC's design proposal, created after hours of public engagements, is still reflecting a not so sustainable vision. Their proposals are still suggesting creating large swaths of low and medium density residential blocks for residents who have low or no economic opportunities, low vehicle ownership, concentrated poverty and high crime rate as previously shown in Figure 3.18, 3.23 and 3.31. Worse still, is the creation in DFC tracts (not Corridors) of landscape, a tacit acceptance of Detroit's diminished economic hopes.

Detroit's problems in the 1940s came from other sources besides uncontrolled growth and lack of planning. It was true that lack of regulation had led to poorly mixed land uses, most notably in the unnecessarily close association between industries and residential neighborhoods. It was also true that lack of a master plan hindered the ordered development of the city and that such a plan could have greatly improved community life.[1]

June Manning Thomas, *Redevelopment and Race: Planning a Finer City in Postwar Detroit* (1997) Pg. 44,

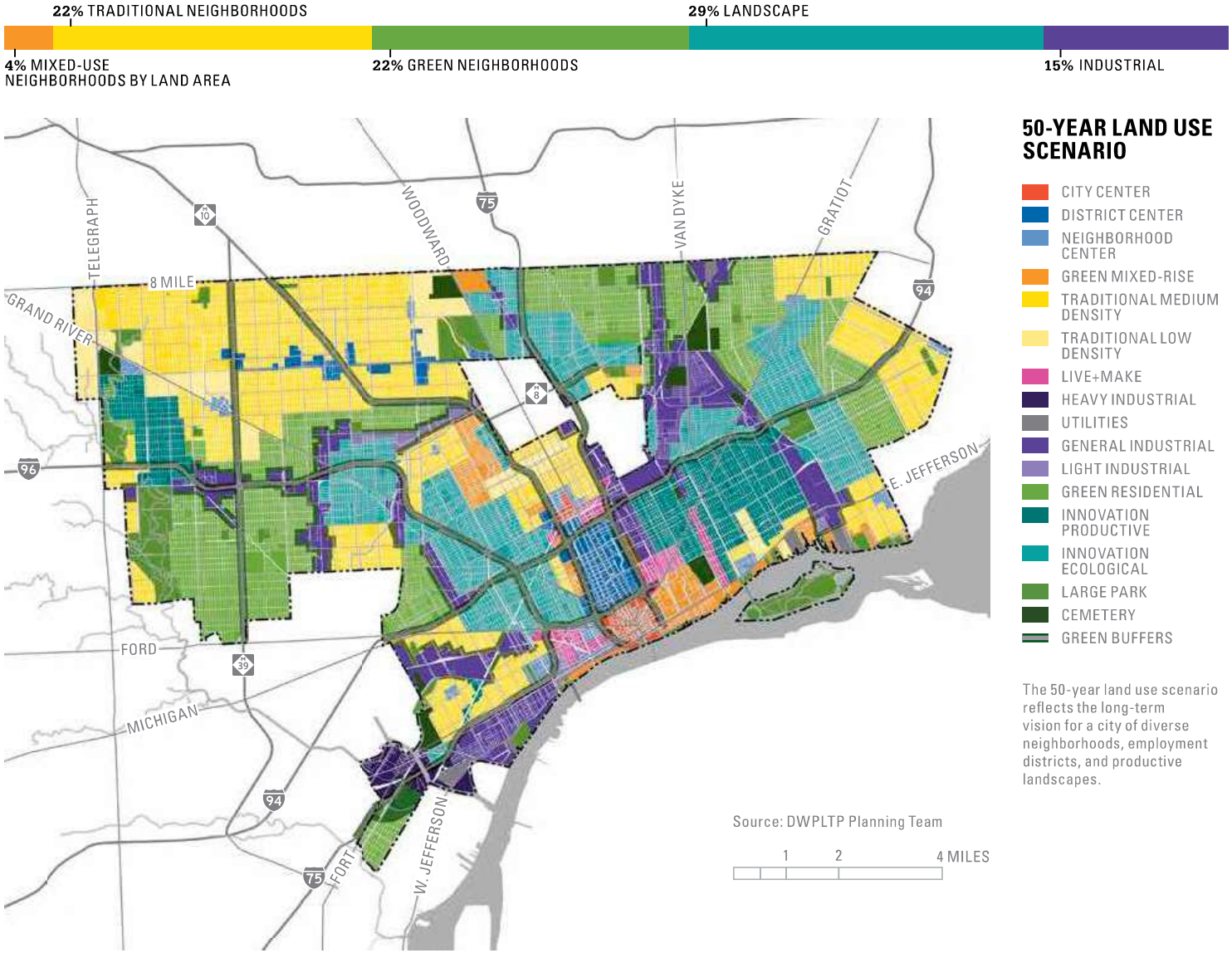

Figure 4.1 : Detroit Future City, 50 year Land Use Plan and Neighbourhoods.
Source: https://detroitfuturecity.com/strategic-framework/

4.2 Lost Population

Detroit's population is on a steady decline despite all top-down revitalization efforts and claims. The declined automotive sales are foretelling that this trend will continue on. The slow demise of automotive industry has left Detroit without an economic attractor. The city officials dismiss all suggestions for a retrenchment plan despite being the city with the greatest population loss in America. Since 1950 Detroit has lost 61% of its population Since 2010 to 2016 alone, Detroit lost 5.8 % of its population according to US Census the city had a total population of 672,795 in 2016, as seen in Figure 4.2. (United States Census Bureau n.d.). The population loss for the City is already set and baked into its situation. What is left for 2015 to 2016 is a continuing trickle out.

In 1993, Marie Farrell-Donaldson the city ombudsman, proposed to move residents from mostly abandoned neighborhoods into city-owned homes elsewhere. High vacancy neighborhoods would be sealed, stripped of services and naturalized, so as to save tax dollars. That plan never got implemented, instead met with huge criticisms from the residents themselves who feared involuntary removal from their marginalized neighborhoods.[2]

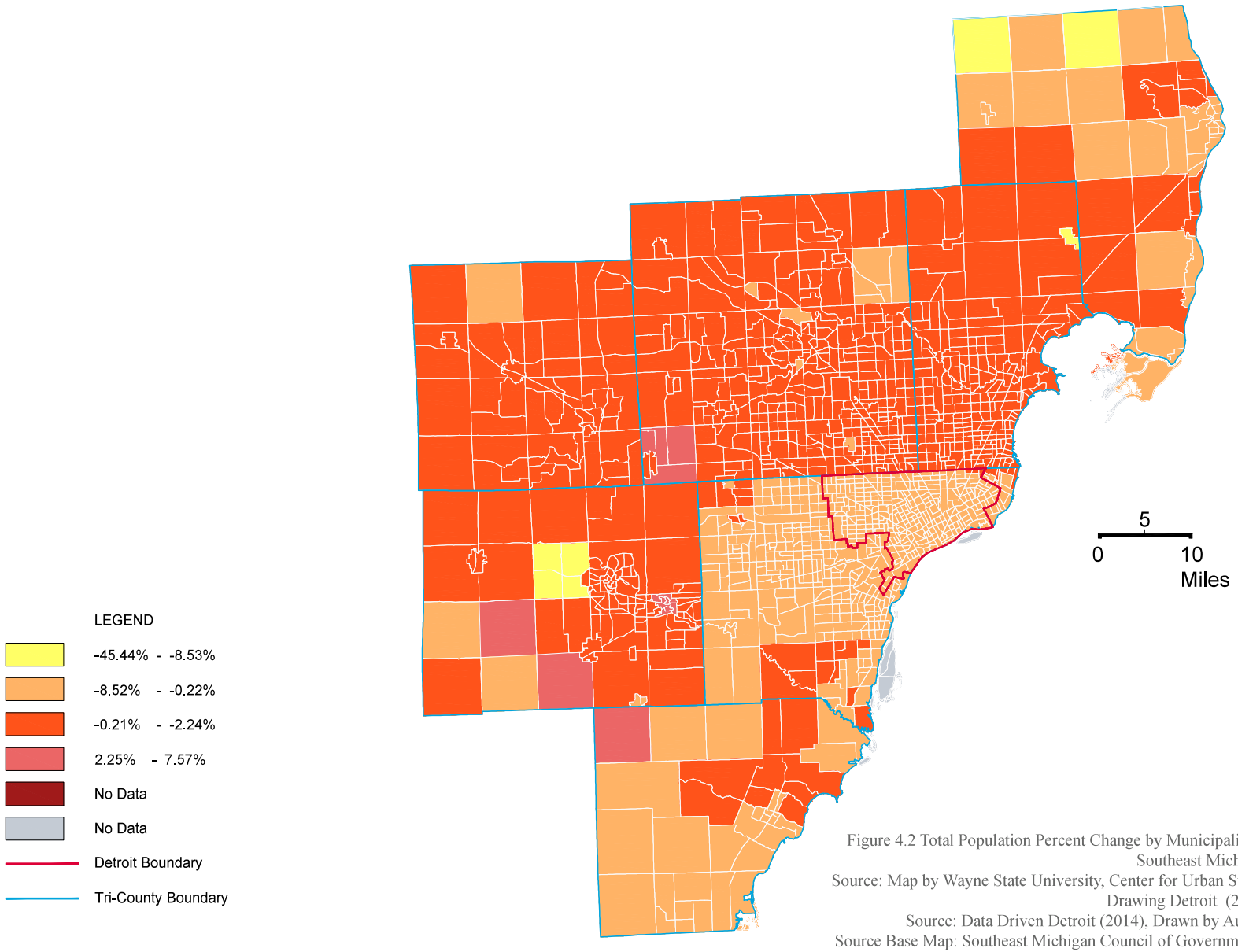

Figure 4.2 Total Population Percent Change by Municipality in Southeast Michigan
Source: Map by Wayne State University, Center for Urban Study, Drawing Detroit (2018)
Source: Data Driven Detroit (2014), Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

4.3 Small Scale Hope and a Way Forward

The neighborhoods have already begun to free themselves from their fate through entrepreneurial efforts and urban farming to generate a local economy that address the food scarcity *(fig. 4.3)*. What's missing is a city-wide approach to become sustainable and cohesive over time. It is clear that a random and patchwork approach is not useful in this case. Detroit needs to consolidate itself along its stronger, more resilient neighborhood sectors. There is a lot of optimism in Detroit residents who are not willing to throw away the city. The municipal efforts are still focussed on the central business area however their efforts are only benefiting big corporations. The stratification between the neighborhoods and the business core continues to make the rich even richer and the poor get poorer.

There is an immediate need for Detroit to have a broad vision and a retrenchment plan for the high vacancy areas. Since the financially struggling city has no funds to implement big changes, developers do not expect any return in their investments in the City of Detroit and the philanthropists donate limited funds at a time. A new broad vision will have to be implemented through a bottom-up approach, and has to be able to work with minimal and intermittent funding. It will have to utilize all the current available resources and address the immediate needs to overcome cultural constraints. The intervention plan will have to be phased in order to be flexible to respond to urban transience and intermittent resource availability.

The consolidation has to be done in a manner that would densify the city, while recalibrating it to a smaller footprint. The dense urban fabric, in order to be sustainable will have to become compact so as to be more walkable and continuous so as to deter illicit activities. Current brownfields need to be identified and residents from these areas must be relocated to healthier, more economically viable neighborhoods. These brownfields can then be put to some productive use once rehabilitated, perhaps even help with increasing the tree canopy percentage which is currently lowest in the region as shown in Figure 4.4.

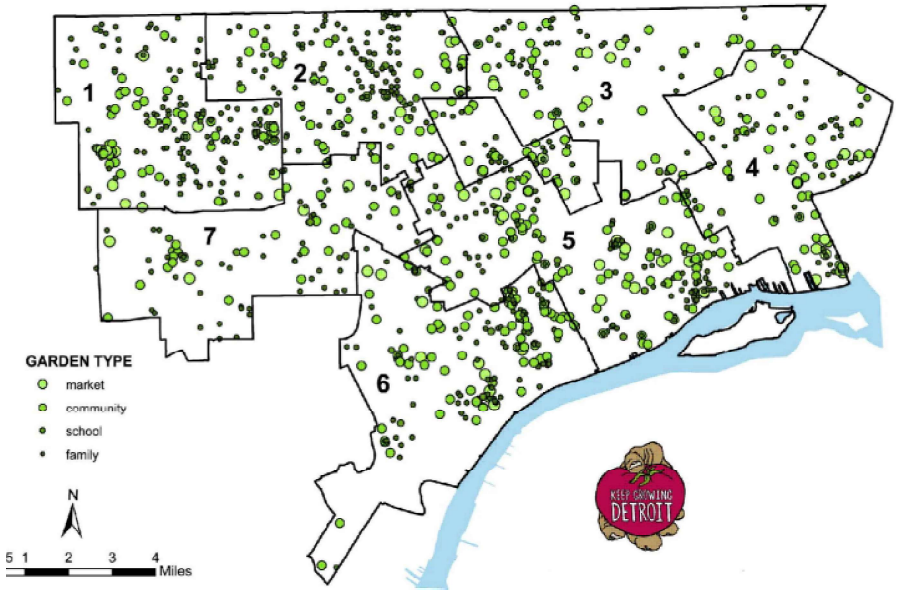

Figure 4.3 Top: Detroit Community Garden Locations- 2013
Source: Center for Urban Studies, Wayne State University – Drawing Detroit

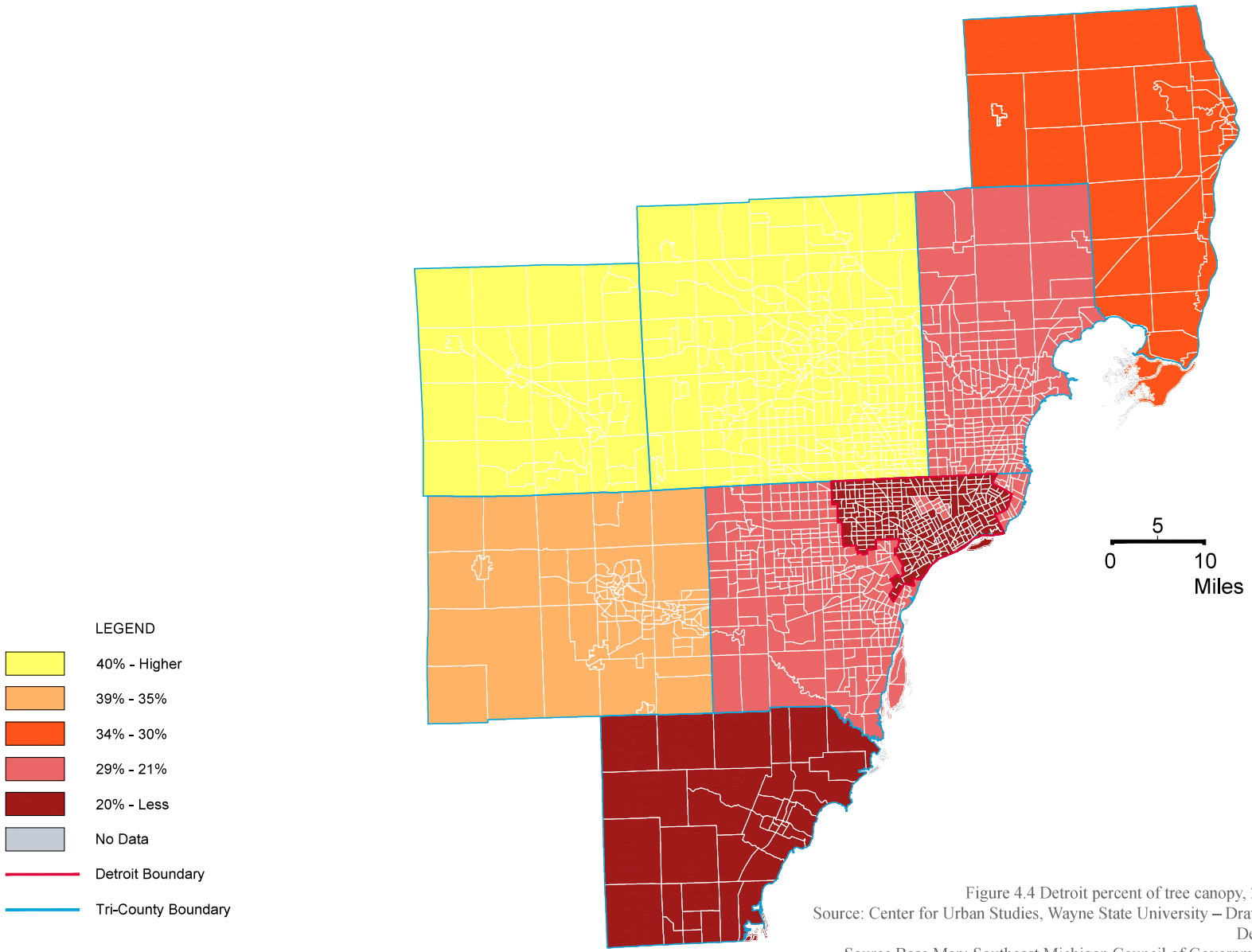

Figure 4.4 Detroit percent of tree canopy, 2014
Source: Center for Urban Studies, Wayne State University – Drawing Detroit
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

4.4 Theoretical Analysis

There is enough evidence for a dense and compact urban form to become a sustainable development, suggestive of compact urban form encouraging social interaction. Compact cities are efficient because they support high densities and mixed use. In theory, people dwell close to their work and leisure facilities, reducing the demand to travel, rendering it equitable. Higher urban densities also make transit-based modes of commute more feasible. In Detroit, condensing the urban footprint generates surplus land that can be used for generative and ecological landscapes. In social terms, the compact and mixed use urban fabric supports diversity, bringing social and cultural cohesion.

The role of dense and compact city in delivering a sustainable development is a contingent one. The professionals argue that higher densities in centralized urban form have environmental benefits, reduction of emissions, greenhouse gasses and global warming being on top of the list. Le Corbusier's Radiant City design presents the extreme centrist position. A vertical city with three million people, housed in twenty-four skyscrapers, surrounded by rest of the city, which is a park. This idea took root with the modernist movement who sought the efficiency of the city and its environmental benefits. On the other hand the de-centrists claim that higher density has severe implications on providing individual lifestyles, a democratic element that American society obsessively craves. The concept of decentralised cities, is rooted in Ebenezer Howard's Garden City, a retaliation to nineteenth century city crowding and overpopulation. In 1898, Howard proposed a city model where large segregated areas for industry, residential, farming and agricultural zones surround a central park with civic structures, and encircled by a greenbelt. Each city was designed to support a population of 30,000 at a 6,000 acres area, with an average density of 25 – 30 people per acre. Both of these models revolutionised planning, however they both fail to provide a stable community to a shrinking city. Societies, craving to live a country lifestyle but with town amenities, but the inherent segregation of work, amenities and residential areas has severe cultural implications for average working class residents. Jacobs has strong words for both of these ideas citing them as 'powerful and city destroying'.[3]

Figure 4.5 Top: Garden City Concept by Ebenezer Howard, 1898,
Source: http://urbanplanning.library.cornell.edu/DOCS/howard.htm

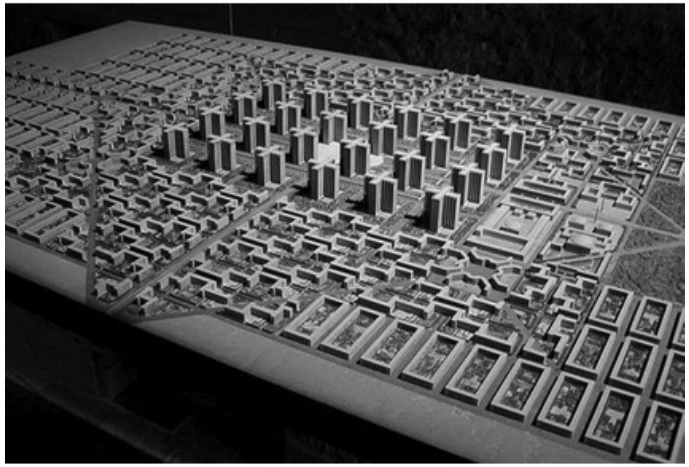

Figure 4.6 Top: The Radiant City by Le Corbusier, 1924.
Source: https://www.archdaily.com/411878/ad-classics-ville-radieuse-le-corbusier

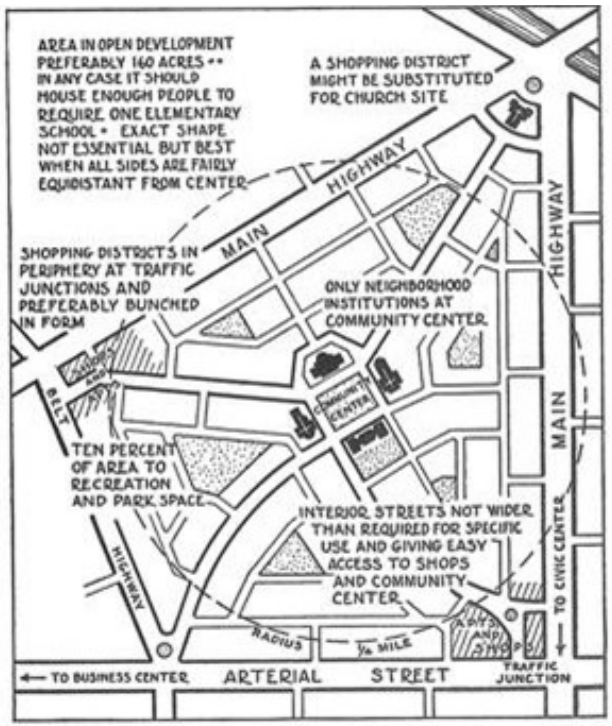

Figure 4.7 Top: Urban Neighborhood Unit Principles by Clarence Perry, Perry, Clarence Arthur, *Neighborhood and Community Planning: Regional Survey, Volume VII Comprising 3 Monographs*. The Neighborhood Unit, Arno Press - A New York Times Company, New York, (1974), Pg. 88

The socio-political forces in Detroit have already created a physical and functional separation between the neighborhoods and the CBD. The scale of the city and bereft zone is so large that to revitalize the city back as a centrist model is not possible. The De-centrist model, where viewing smaller neighborhoods as cellular entities has better agency as long as each neighborhood is further fortified through a finer grain of activities and processes. Jane Jacobs, suggests that 'a neighborhood is not what it 'is' but what it 'does', and what it does in her view, is to organize people to have a voice and a platform to make modifications and adaptations to its spatiality. Jacobs presents three scales of neighborhoods. The neighborhood street, the neighborhood district and the city neighborhood. Since the city of Detroit is polarized to a level where a large vacancy zone prevents the periphery neighborhoods to form a unified 'city district'. The highest level of social representation can be found in the neighborhoods to group themselves as unified 'neighborhood district' level. The design goals will therefore explore the possibility of creating sustainable neighborhoods.

One of the very first American planners who started a detailed analysis of the city at neighborhood design level is Clarence Arthur Perry. Perry began to advocate for a well-planned neighborhood unit in early 1900's. His core ideas are still utilised, mostly adapted to 21st century needs by the New Urbanism movement. It was the dangers of vehicular traffic in neighborhoods that sparked some of the initial ideologies however his theories evolved later to a design framework of healthier identifiable neighborhood fit for family life. Perry viewed the neighborhood unit as a cellular entity in the social and political sense, thereby making it replicable. A few of Perry's' core principles are; central placement of schools, main streets as a boundary (generating neighborhood identity), interior streets preferably curvilinear for interest and safety, ten percent park areas and commercial activities restricted to neighborhood entrance, restricting through traffic outside neighborhoods. Perry's working model supports a population density of 5,000 persons per 160 acres, a half mile square area. Although the concept of neighborhood unit and its size is well-supported for Detroit, the fine-grained urban texture required for Detroit's urban processes seems elusive.

All of these claims, however theoretically contested, are pragmatically reflected in later planning movements such as Landscape Urbanism, New Urbanism, Sustainable Communities and Smart Growth, still rooted in modernist and decentrist principles.

The principles of New Urbanism movement are based on fostering neighborhood walkability, connectivity, increased mixed-use urban fabric and increased density. Since average of 25% of residents do not own a personal vehicle, their dependencies on reliable public transport are heightened. It necessitates the recalibration of neighborhoods to a walkable, bike-able pattern, using 1/4 mile walkable radius as a rule. A quarter mile walking distance, i.e., a five minute walk sets the size for each neighborhood unit at half-mile by half mile. To view the neighborhood districts as a cellular elements, functional as a whole and constituting part of a larger whole, within the fabric of the neighborhood clusters has strong agency.

The New Urbanism movement presents concept of urban transect, drawn by Andres Duany and rooted in ecology, further clarifies density zones. Urban zones are realized through careful appropriation of land use and classified according to various urban densities. The various densities represent a gradient of choices for housing density as the classification proceeds from natural zone to urban core. In his book, *The Smart Growth Manual*, Andres Duany suggests that each zone has a certain functional autonomy, as long as the internal processes are mutually supportive. This means that a very high density node could physically abut a naturalizing zone and not have any negative impact on each other as long as the internal processes are well sustained. Here he cites the example of Central Park New York that has highly preserved ecological gardens and recreational activities, abutting Fifth Avenue with heavy traffic, commercial and corporate typologies.

Authorities keep telling the masses that Detroit is bouncing back, year after year the statistics do not support these claims. As Thomas Sugrue points out in his interview, firstly, he says that Detroit lacks the density to attract the creative-class, secondly the bifurcation between downtown and neighborhoods is so large that a small injection of creative-class is not sufficient for Detroit's turnaround at the peripheries. He also aptly states that although people's attitudes have changed, but still racial fears are a high barrier to attract a diverse middle-class. Speaking of which, Jane Jacobs points out that there is no "bringing back" the middle class, the reality is that it is the middle-class that left the slums in the first

Figure 4.8 Top: Urban Transect with six rural to urban zones.
Andres Duany, Jeff Speck, Kike Lydon, *The Smart Growth Manual*, McGraw Hill (2009) Pg. 1.4

place.[4] She also points out that if a slum has to stabilize, its residents must be 'attached' and willing to stay and change their habitation.[5] Detroit's neighborhoods desperately need to be able to generate a local economy that makes these neighborhoods a 'practical' choice for them. As Jacobs argues, that the process of stabilizing a slum works only of its economy has the ability to constantly transform its poor people to skilled and competent citizens.[6]

In terms of its economy, a bootstrapping approach would have to be employed since Detroit does not have the interest of the mainstream capitalists and developers. Currently the uneven density and a patchwork of vacancies has rendered Detroit incapable of sustaining economic bootstrap efforts. The process of curative densification would have to recognise the transient urban qualities through incremental changes. Recognise that it took several socio-political forces many years, to incrementally create the current disorder. The integration of new urban elements would have to be thoughtfully introduced and their effects, on the ecology of existing urban fabric to be gauged, prior to introducing further alterations. A step-by-step, phased process, where regenerative success or failure of one step guides the next. In this model, the processes would also have to be analysed, devised and applied holistically and integrally. Fragmented redevelopment efforts of the past warn us of its embodied hazards. For instance, building a new housing block would only take away the middle-class residents from the existing neighborhoods and render the existing fabric even weaker. But thinking integrally, if we were to infill existing residential voids with fine grained typologies and uses, we will get a multi-aged, multi layered fabric that can support diversities of use and users, raising accountability.

4.5 Recalibrating Detroit: A Paradigm Approach (SOHO)

To develop a flexible implementation plan, each intervening step is part of an ongoing process. It is a step-wise process, guided by objectives rather than prescriptive blue-print. A city scale intervention plan, is not to be mistaken for a conventional 'master plan' but to be used as a tool to guide the propensity of objectives, this would responsively allow for a gradual change in the right direction overtime. An incremental approach is contrary to conventional 'blueprint' planning approach. In conventional planning, a final vision generally based on speculative goals set by planners, the key stakeholders and the developers, is implemented in a single step, or phased in a few steps, to reach a pre-determined consequence. On the other hand, incremental densification of neighborhoods requires a plan for the city to recalibrate itself. If Detroit has to become a sustainable city, its internal texture such as density, grain and the access system, as mentioned by Lynch and Jacobs, will require a transformation. To ensure that this transformation is truly sustainable, the manner in which this change is implemented is equally important.
The application of 'systems thinking' enables us to view Detroit as a Self-Organising Holarchic Open system. Here, City as a whole, City as a Neighborhood and City as a Street are viewed as holons, entities complete and operative at individual scale as well as existing in a hierarchy of reciprocal relationship at each level. A SOHO design approach views the transformation at each scale to send feedbacks to holons at adjacent scales, gradually transforming the entire city-scale holon, as seen in Figure 4.9
Urban modifications would have to be implemented through careful analysis of resident's needs and desires, evaluated by a transdisciplinary team made up of local activists, philanthropists, residents and professional disciplines, to name a few. The incremental approach to development is guided by in-depth research and surveys of residents needs and guided towards a broader vision for the overall city. Since the transformation is not a single-step event, each gradual step informs the stakeholders to better guide their next steps. As the system gains maturity through modest steps, all parties involved gain more influence and expertise to respond to unforeseen social and economic conditions.

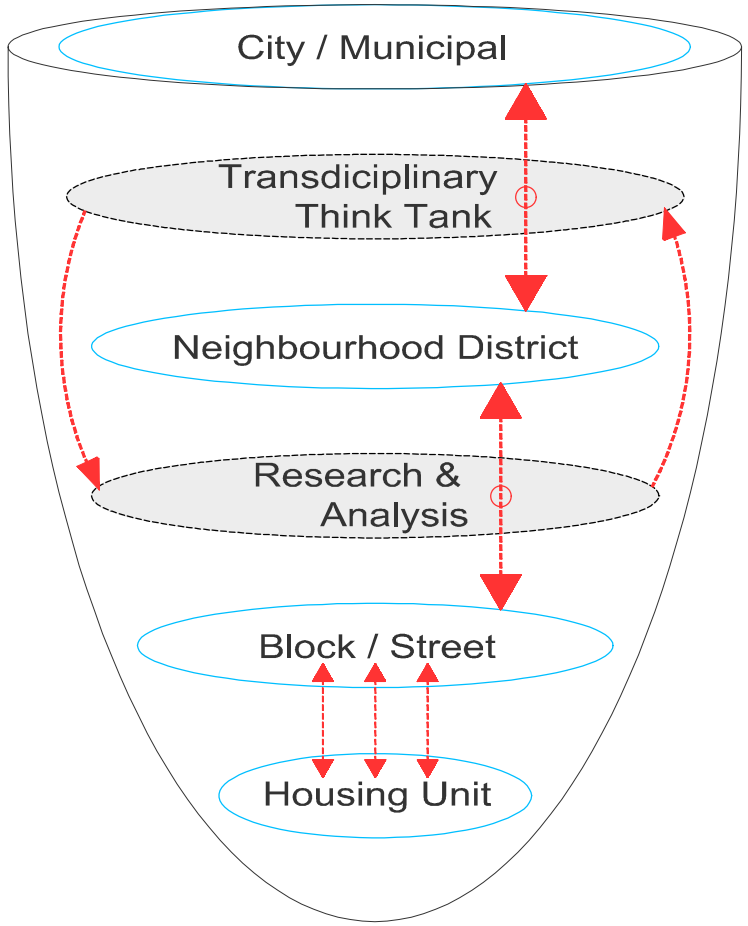

Figure 4.9 Detroit as a 'holarchy'. SOHO design based upon systems thinking as explained by James J Kay.

—Density, grain, and the access system – the internal texture of a city – are the principal features by which we may judge its performance. The nature of its growth and change are equally important, but we know rather little about those effects. A city's size and its outline on a map may be much less critical than we had thought.[7] —

Source: Kevin Lynch, *A Theory of Good City Form*, (1981) Pg.275

—*obsolescence of the lay-out – the lot lay-out; and the obsolescence of the type of use to which the area is put. Of course, the mere age of the building is itself, you may say, a cause of the slum; but if one merely removes that by substituting a new building for the old, one simply starts a new period of blight, as long as one keeps the present layout and the present type use.*[8] —

Source: Alfred Bettman quoted by June ManningThomas, Redevelopment and Race: Planning a Finer City in Postwar Detroit (1997) Pg. 43

4.6 Recalibrating Detroit: An Implementation Process

The theoretical urban models of the past such as the Centrist model by Le Corbusier does not present an urban realm with a prime focus to activate the city streets as in Jacob's ideas.[9] Therefore a polycentric urban approach using a De-Centrist model by Ebenezer Howard is most suitable to incremental recovery. The approach is to create multiple higher density nodes with active street-fronts created through mixed-use building typologies. The grain of use along existing boundaries, formed by heavy industrial corridors, railway lines and highways will have to be blurred to be seamed. New edges between consolidated areas and vacant areas due to blight will require redefining as buffers.

A city-wide recalibration plan is a precondition for the incremental densification to be effective. It sets a unified sustainability vision at a city scale through incremental interventions, implemented at individual neighborhood scale. The size, density and urban composition of the overall city will then be an outcome of modifications introduced at neighborhood level.

This thesis proposes following steps to achieve recalibration:

1. Identify Zones
2. Set Density Goals
3. Identify Recalibrated Footprint
4. Revise Neighborhood Districts
5. Revise Street Typologies
6. Identify Density Gradients
7. Revise Boundary Definitions
8. Program Voids
9. Adaptive Governance
10. Incremental Densification — Proposed as Five Phases over Twenty-Five Years

As the objectives for each neighbourhood are better defined and clarified through user feedbacks, the city-scale plan could be modified to suit the 'actual' local needs. The scale of alterations might range from minor changes within individual structures to larger modifications, such as land-use and network routes. Since the economic responsibility is taken-up by grassroots initiatives, the gradual and incremental approach supports the dissipation of financial risks as well. Currently, new residents are not attracted to Detroit, gentrified areas are too far and segregated to impact neighbourhoods. The middle-class that grows in Detroit neighbourhoods is leaving. This leaves the obvious choice, Detroit needs to retain *all* its current residents. The only way it can be achieved is if it gathers *all* its resources, people and material.

A city-scale plan is a designed paradigm, used as a tool to initiate the discussion, guide the scale and location of activities, and subject to change upon clarification of user objectives. A city level layout requires investigation of current population trends to propose layout objectives, within the density gradients. Built form, functionality and implementation follow those objectives, guided by user-defined considerations.

A detailed analysis of the existing parcel vacancy and population density can further inform the design process. Figure 4.10 shows the total vacant parcels within Detroit after all demolitions currently underway through the Hardest Hit Fund Initiative have been done. Vacant parcels due to demolitions are mapped in Figure 4.11, it is a set of six maps, which locates all the vacant parcels that are rendered vacant due to recent and ongoing demolitions of both residential and commercial structures.

Once the vacancy pattern has been studied, the existing areas can be sectioned into three types of zones, based on vacancy levels. Each zone would require a different approach for densification, land-use, urban grain and access.

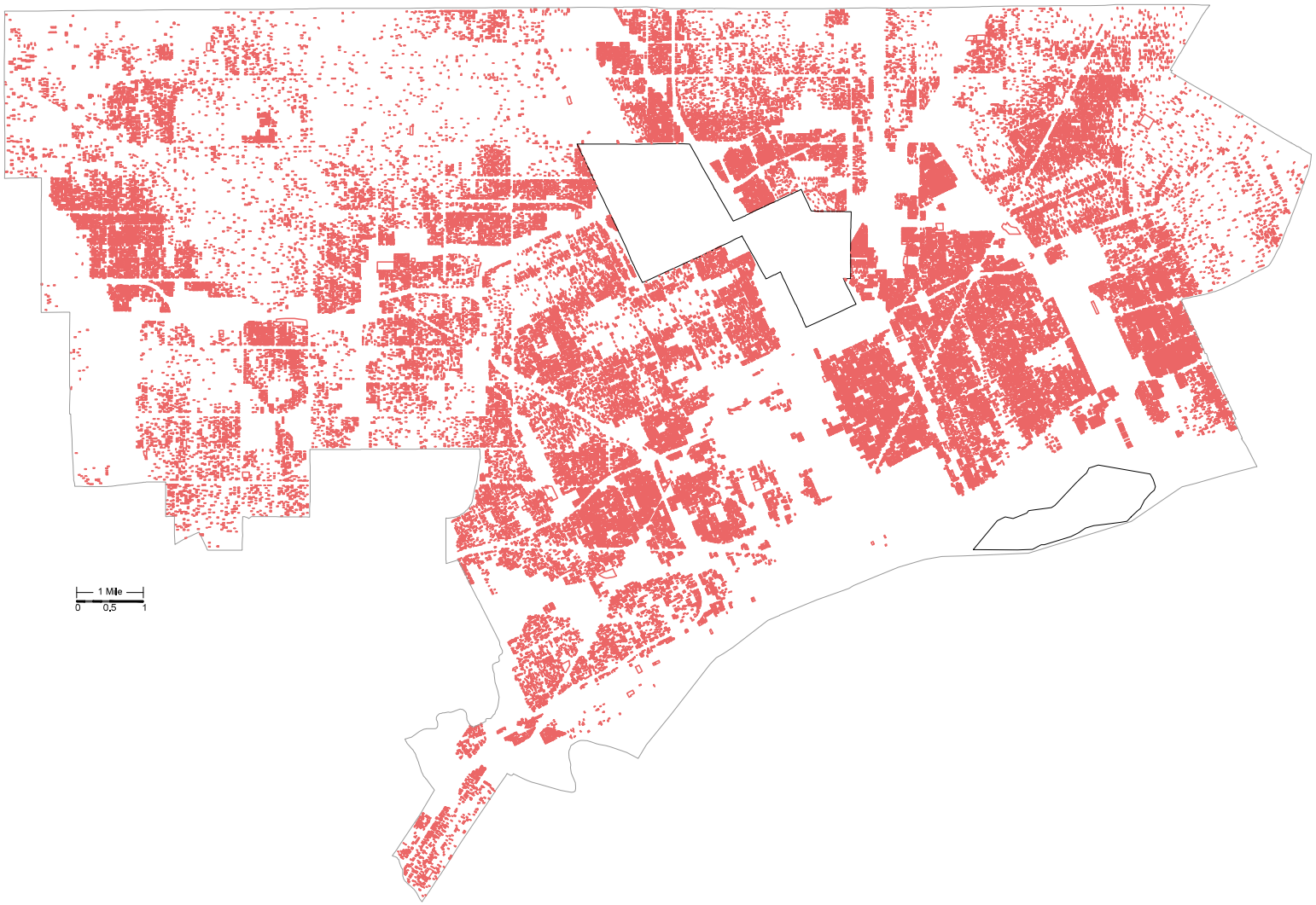

Figure 4.10 Detroit vacant parcels. Current vacant lots and parcels with current and future demolitions
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

Hardest Hit Fund is State-led demolitions program to remove blight from distressed neighborhoods. The following series of six maps identifies the residential and commercial parcels that have been added to the vacant parcel list due to demolitions. Most of the demolitions are paid for by the Hardest Hit Fund program (HHF) however, there are few structures that are demolished under City's emergency demolitions criteria and those costs are covered by the City, fire insurance escrow and other non-HHF sources such as Detroit Land Bank Authority.

A quick review of the Figure 4.11 (a-e) maps reveals that residential structures are generating most of the demolitions activity. There are a reasonable number of commercial structures on the demolitions list as well, either already demolished, contracted or awaiting demolitions. The City of Detroit website provides regular updates on the demolition status of structures under Detroit Demolition Program title. A comprehensive vacancy map, as shown in Figure 4.6 which would include all vacant parcels, past, current and future will form the basis of analysis and design.

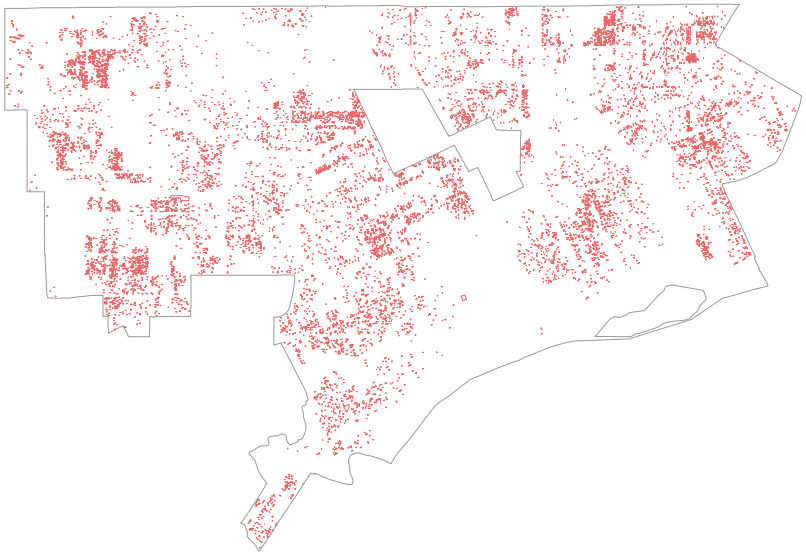

Figure 4.11a Detroit vacant parcels due to residential demolitions recentlycompleted
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

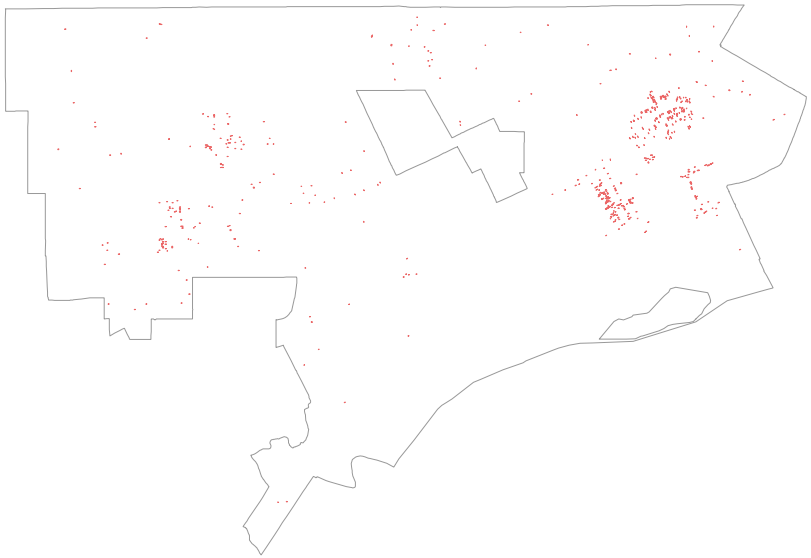

Figure 4.11b Detroit vacant parcels due to residential demolitions that are contracted
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

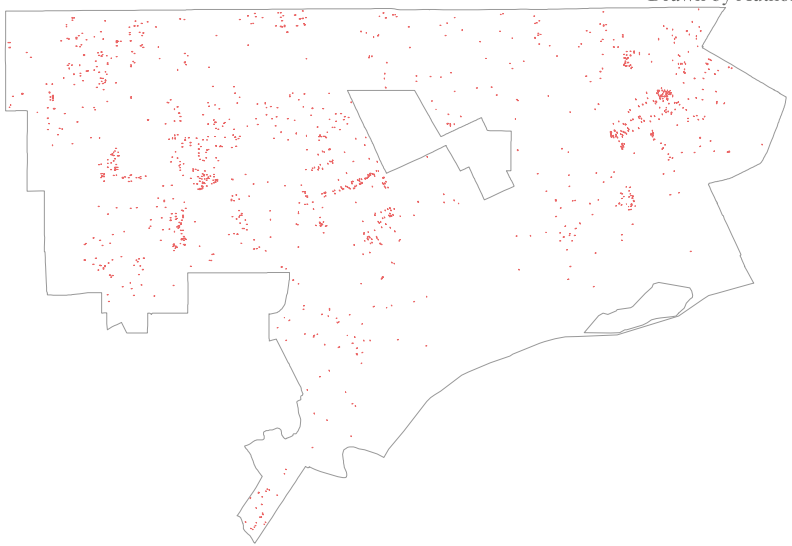

Figure 4.11c Detroit vacant parcels due to future residential demolitions
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
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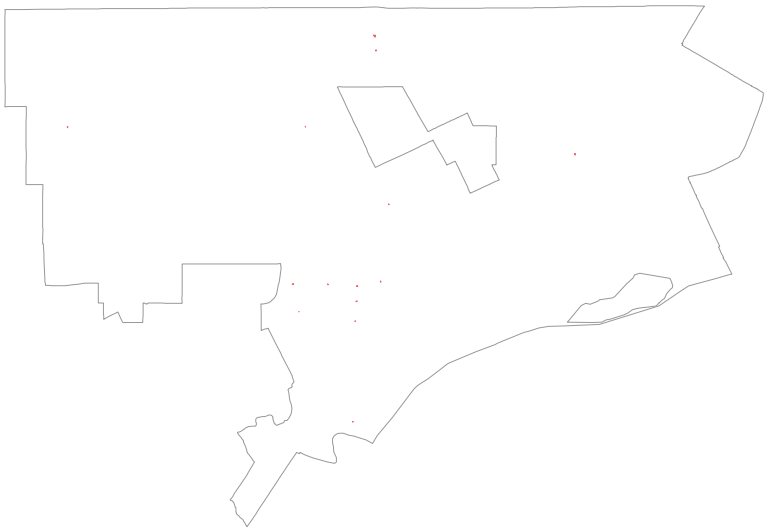

Figure 4.11e Detroit vacant parcels due to commercial demolitions that are contracted
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

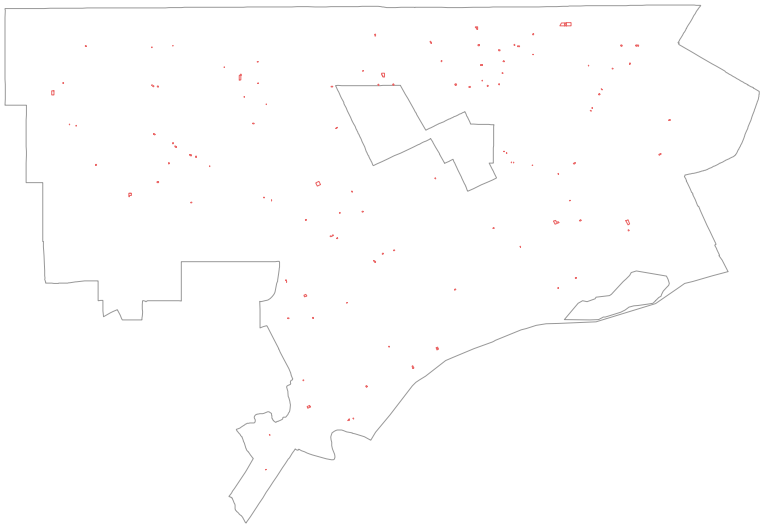

Figure 4.11d Detroit vacant parcels due to commercial demolitions, recently completed
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

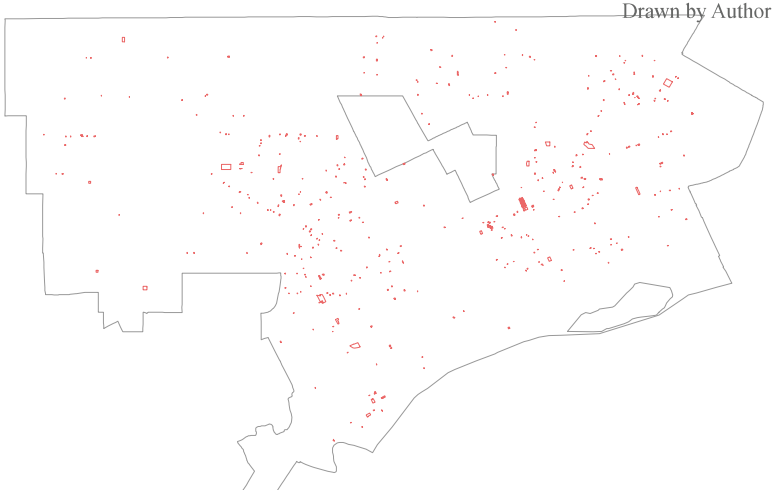

Figure 4.11f Detroit vacant parcels due to future commercial demolitions
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

Step 1. Identify Zones

The proposal seeks to evaluate the degree of existing vacancy and the vacancy patterns so as to sort them into strong, opportunity and void zones.

First, are the 'Strong Zones'; with a residential vacancy of approximately 15 % or lower. These zones present an area that is already experiencing relatively stable environment and healthy urban processes as indicated in Figure. 4.12. The objectives for areas in this zone are not to disturb the residential mix but to fortify it through densification. If new houses are infilled in these zones, because the 85% surroundings are relatively stable, the new owners have the propensity to bring further stability by upgrading their houses and committing to stay.

Second, the 'Opportunity Zones', with residential vacancy levels of approximately 16 - 30 %. These percentages are an approximation, based on the assumption that if more than half of the original neighbourhood residents have a functional community network already present, then that could reinforce the settlement process of new neighbours. Most of the medium and higher density gradients and activity nodes would be located within the opportunity zones.

Third, the Void or the 'Landscape Zones', with vacancy levels of approximately 31 – 100 % vacant. These zones are planned to be vacated on the assumption that vacancy trends are so dominant that it would require unreasonable input of resources for urban revitalization intervention. These zones will require different strategies so as to employ them as generative and restorative landscapes.

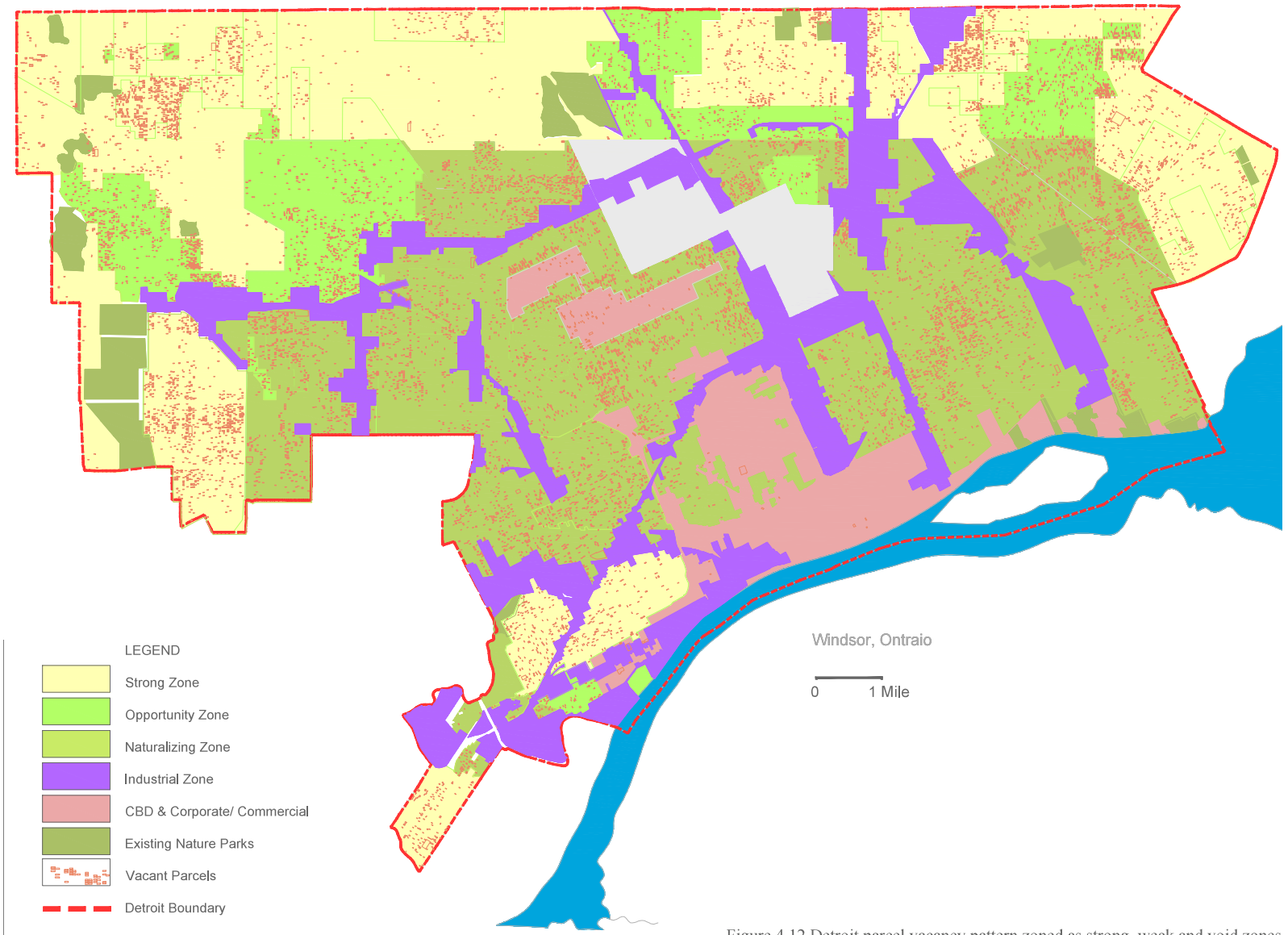

Figure 4.12 Detroit parcel vacancy pattern zoned as strong, weak and void zones
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

To determine its density and layout pattern, it is important to establish a co-relation between density and the intensity of processes. An appropriate density goal for Detroit could be analysed by comparing Detroit's current population of 683,443, as if it were to be densified to density levels of some of the thriving American cities. Population numbers used in this section based on 2016 US census as seen in Figure 4.13.

New York City, with its high-rise and mid-rise typologies has attained a density of 28,030 persons/ sq. Mile. This is based on a population of 8,538,000 persons per 304.6 sq. miles of city area. If Detroit population were to be densified to New York City density it would only require 24.4 sq. miles of urban footprint.

Toronto, non-metropolitan city core, with its high-rise, mid-rise and single-family typologies has attained a density of 11,545 persons/ sq. Mile. This is based on a population of 2,809,000 persons per 243.3 sq. miles of city area. If Detroit population were to be densified to Toronto's density it would only require 59 sq. miles of urban footprint.

Philadelphia, non-metropolitan city core, with it's mostly townhouse, and mid-rise typologies has attained a density of 11,066 persons/ sq. Mile. This is based on a population of 1,568,000 persons per 141.7 sq. miles of city area. If Detroit population were to be densified to Philadelphia's density it would only require 61.8 sq. miles of urban footprint.

Los Angeles, non-metropolitan city core, with high-rise, mid-rise and single-family typologies has attained a density of 6,597 persons/ sq. Mile. This is based on a population of 3,976,000 persons per 502.7 sq. miles of city area. If Detroit population were to be densified to Los Angeles's density it would occupy 104 sq. miles of urban footprint.

Architect and planner Clarence Perry writes in his book 'Neighborhood and Community Planning: Regional Survey', that a tract of 160 acres (quarter sq. mile) is large enough to have an individual 'character' as a neighborhood with distinct urban features.[10]. He further concludes that a neighborhood tract can operate itself if it has 1,000 families (based on 5 persons per family) attaining a population of 5,000 persons.[11] This theoretical density would result in 20,000 persons per sq. mile. This means that if Detroit were to be densified to Perry's theoretical basis of neighborhood design, it would only require an urban footprint of 34 sq. miles.

Currently, Detroit, non-metropolitan, with its low-rise and single family typologies has a density of mere 4,783 persons per sq. mile. This is based on a population of 683,443 persons per 142.9 sq. miles of city area. (2012-2016 US Census)

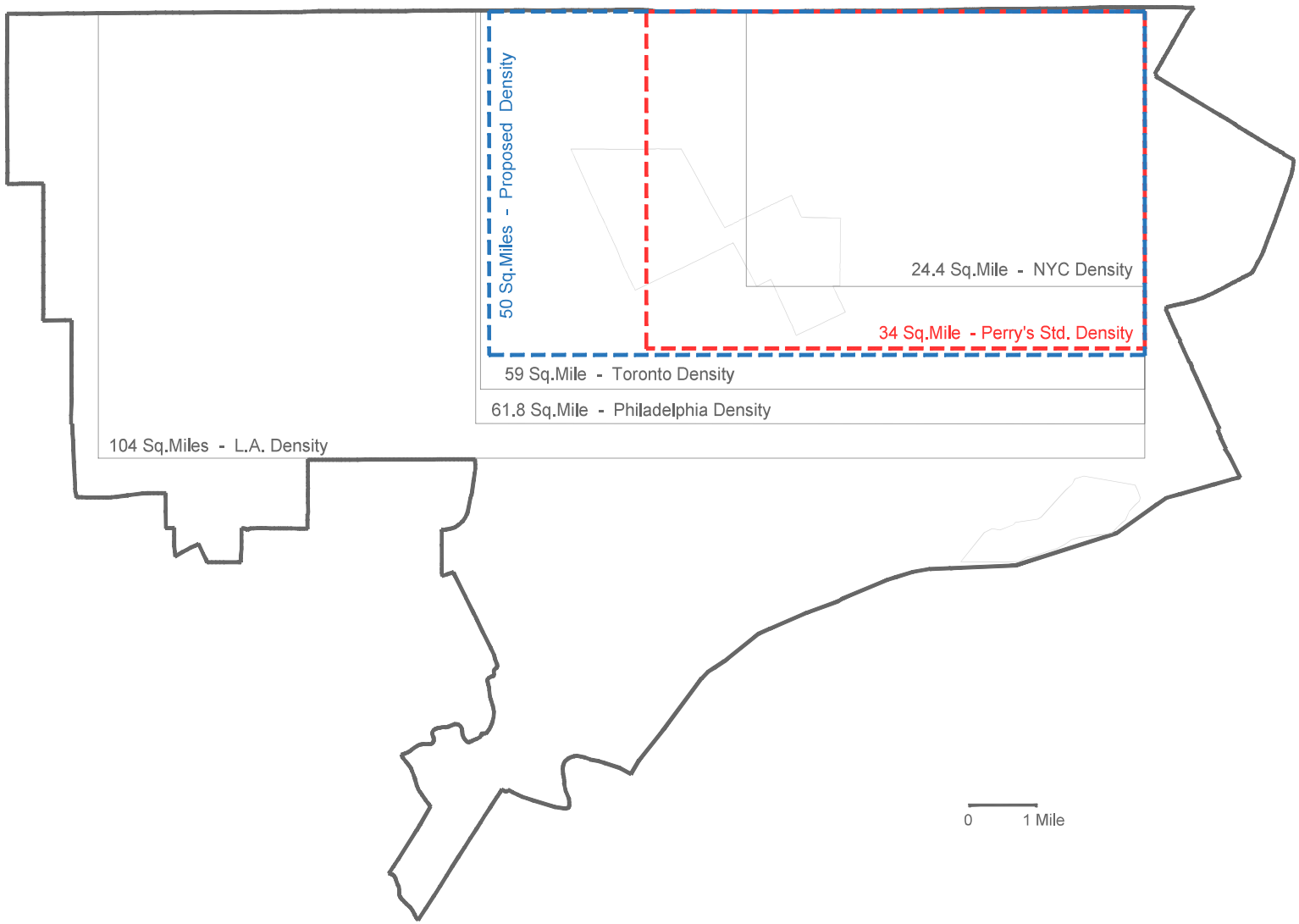

Figure 4.13 Set density goals for population within the strong zones
Source: Drawn by Author

Step 3. Identify the Recalibrated Footprint

If Detroit were to be built up to any of the densities of the aforementioned city densities it would require an area as shown in Figure 4.14, however the big question remains which city density with combination of its built spatial elements presents itself as a desirable goal for Detroit's future. New York City is an example of a thriving high density city, it could take Detroit several years to have the economic processes that enable New York City's fast paced urbanism. Los Angeles city core on the other hand has an urban density which is sporadic and lower than most American cities. The urban processes generated within Toronto and Philadelphia and the mix of high density core with medium density residential enclaves presents a more realistic density goal. Interesting to note that the theoretical basis of Clarence Perry's neighborhood unit also builds a density level higher than that of Toronto. This could be because, although downtown Toronto is a very dense and walkable city, most of its business core is predominantly corporate. The areas surrounding the business district are interspersed with medium density residential enclaves.

Since the proposal seeks a bootstrapping densification approach, one which the residents of Detroit can undertake themselves, developing a density model using Toronto's density levels could be appropriate. This is not to suggest high density core with high-rise towers, But to imagine building medium density neighborhoods using three and four story walk-up units with active street-front buildings.

If 15 percent of 2016 Detoit population were to be assumed linked to CBD and the growing midtown areas that are disconnected to neighborhoods, then 85 percent of remaining population, or 580,927 persons are to be located within new 50 square mile footprint as seen in Figure 4.14a. An urban footprint of 50 square miles, as suggested by Allan Mallach, would suggest Detroit's proposed neighborhood density to be 11,619 persons/ sq. mile. This represents a density slightly higher than that of Toronto and Philadelphia, and could be a good middle ground between density levels suggested by Perry and thriving Toronto residential sectors.

In this step a 50 sq. miles area incorporating the strong and opportunity zones that are well connectedted to strong zones therough proximation are mapped out, as shown in Figure 4.8.

The next step would focus on creation of viable neighborhood districts. Once the areas for neighborhood urban zones and opportunity zones are identified, they can be overlaid with proposed locations for high-density nodes and slowly the street typologies could be revised. Contrary to the DFC's proposed neighborhood zones, the new urban footprint would strive to generate a mixed-use urban grain with a variety of density gradients formed around the vitality nodes located within each neighborhoods 1/4 sq. mile grids.

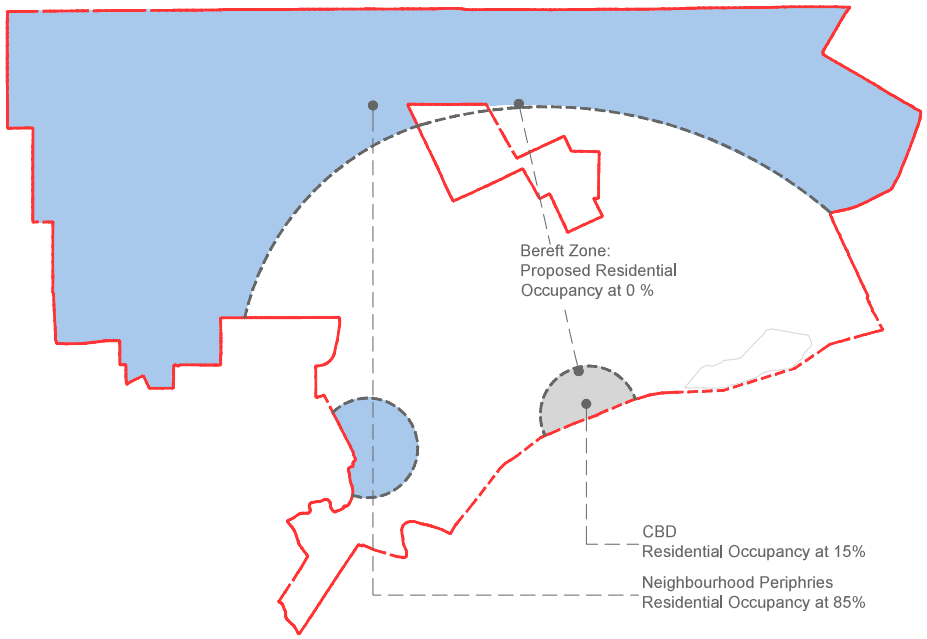

Figure. 4.14a Detroit 2018. Relationship of CBD to populated periphery neighborhoods.
Drawn by Author

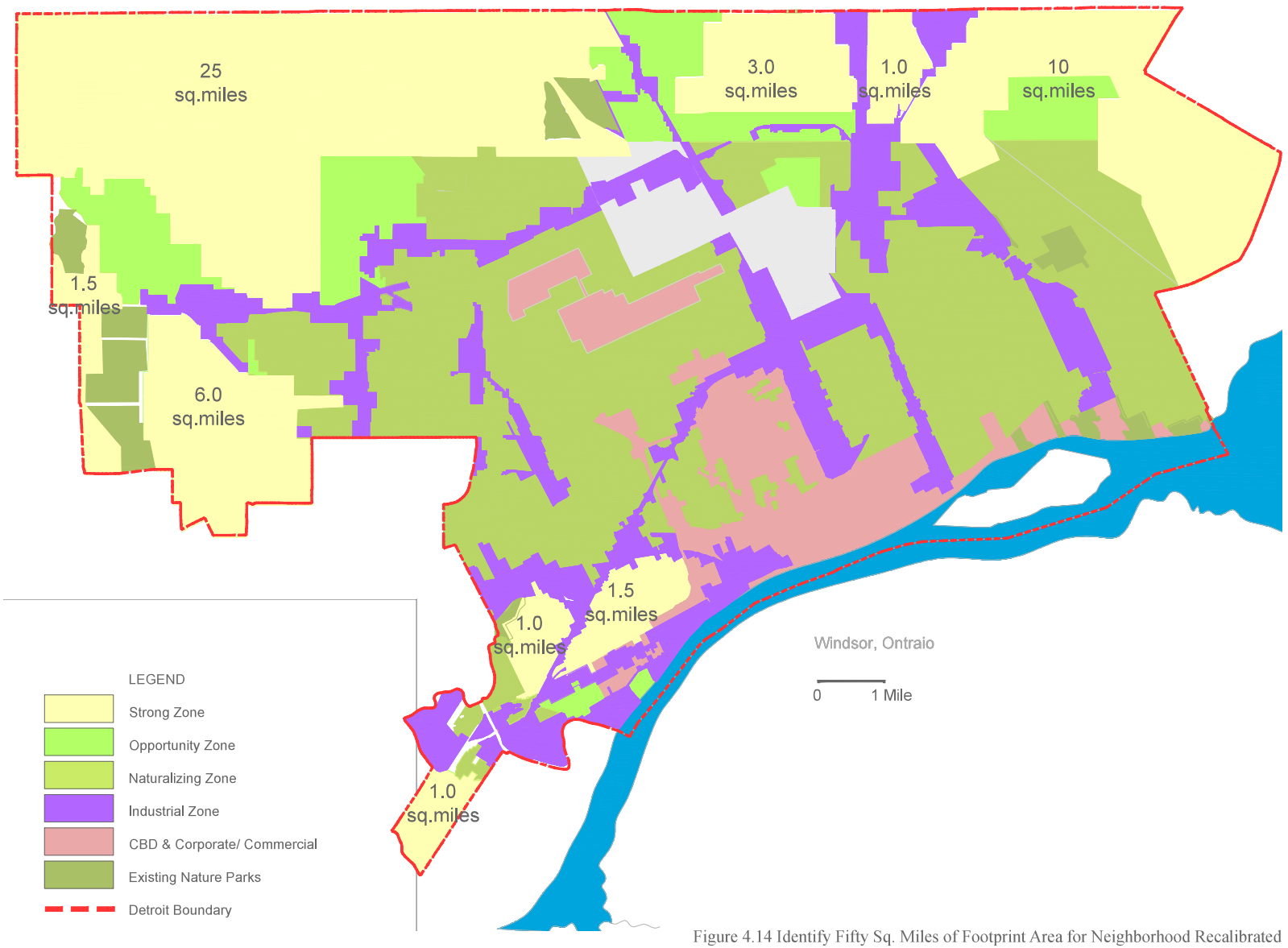

Figure 4.14 Identify Fifty Sq. Miles of Footprint Area for Neighborhood Recalibrated
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/
Drawn by Author

Step 4. Revise the Neighborhood Districts

The design goals will explore the possibility of creating sustainable neighborhoods. The spatial segregation of neighborhoods through highways and industrial corridors prevents its residents to unite and present themselves in a unified manner. As seen in Figure 4.15, spatially fractured neighborhood districts hinders its functional identity. The internal spatial segregation prevents the neighborhoods to present themselves as cohesive entities, and thereby prevents formation of strong organs of self-government formal or informal neighborhood coalition.

According to Christopher Alexander, communities of 5,000 to 10,000 are capable of structuring themselves to initiate and execute decisions at neighbourhood level.[12]

It is therefore vital that the existing district boundaries are redefined such that the physical borders do not manifest as social and cultural borders. As seen in Figure 4.16, the scale of the newly defined districts must be small and the urban fabric in each district must be uniform and free from industrial corridors and highways.

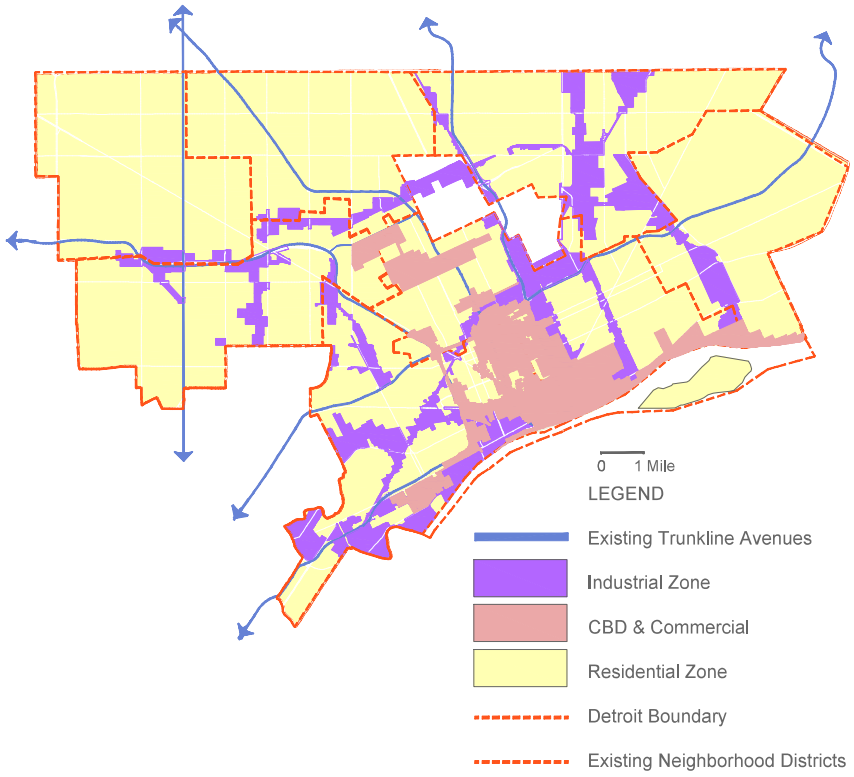

Figure 4.15 Existing neighborhood districts (Drawn by Author)
Source Data: Data Driven Detroit (2014)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

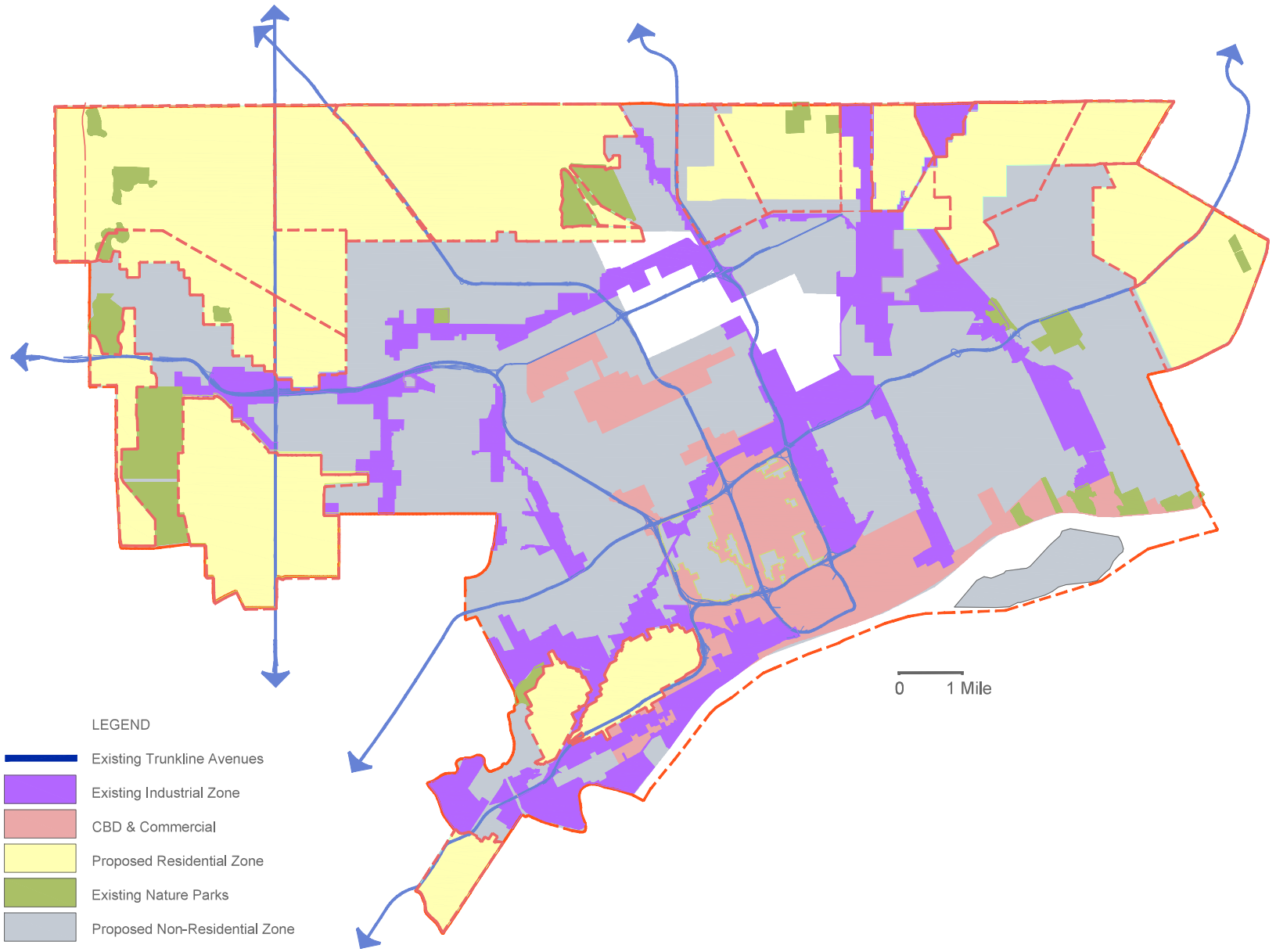

Figure 4.16 Revise neighborhood districts (Drawn by Author)
Source Data: Data Driven Detroit (2014)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Step 5. Revised Street Typologies

After the neighborhood districts are redefined, the existing street network has to be recalibrated to serve the new districts only, in order to reduce the unnecessary municipal road maintenance *(fig. 4.17)*.
The movement structure joining the districts and the void areas need to be recalibrated so as to include only the local street network serving the strong zones. The local residential streets within naturalizing ones can be eliminated for resident safety and reduction of municipal liability *(fig. 4.18)*. The main Transit arterial roads along Six-Mile, abutting larger void areas is proposed as a Green Corridor. The Seven-Mile Road crossing through the center of newly formed neighborhood districts, is proposed as a mixed-speed transit road. High Traffic Green Corridors and their relationship to Regional Trunk-lines. Recommend traffic calming zones near high density and medium density corridors. As the neighbourhoods recalibrate gradually to a walkable street grid, the success of its re-configured spatial elements rests heavily on strong supportive infrastructure.

A local street network could be incrementally designed during phases, to integrate various elements such as neighbourhood density clusters, the greenway trails and the CBD roads.

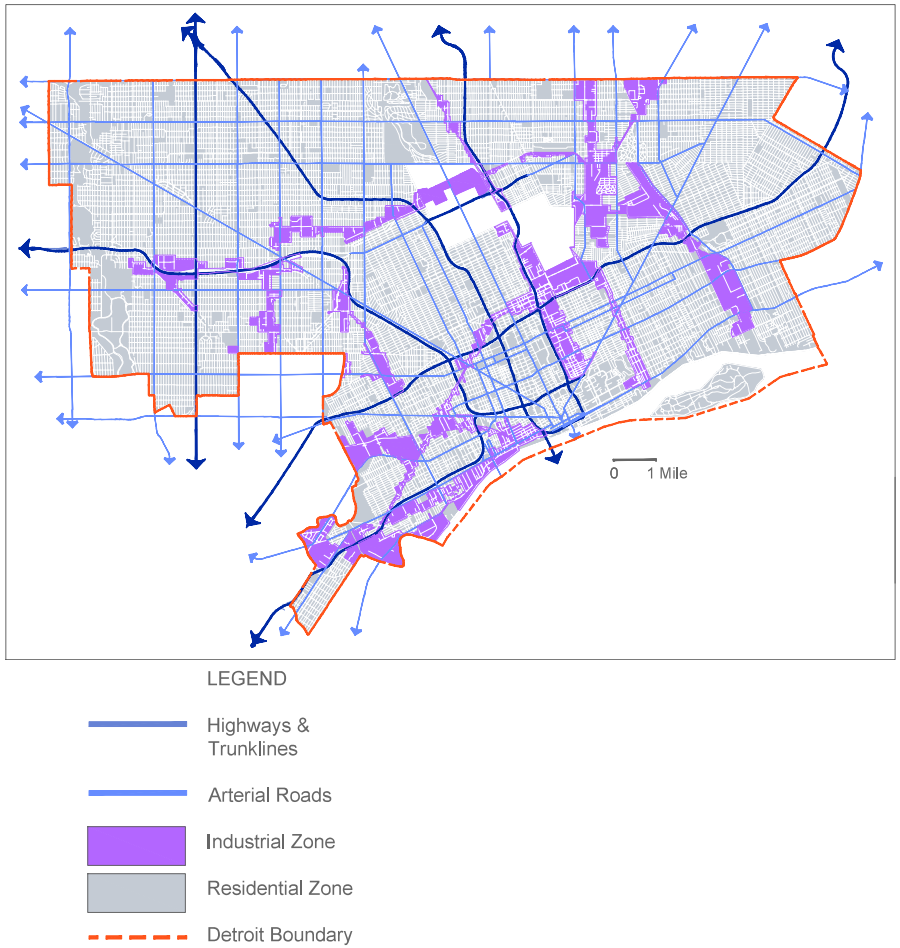

Figure 4.17 Existing street typologies (Drawn by Author)
Source Data: Data Driven Detroit (2014)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

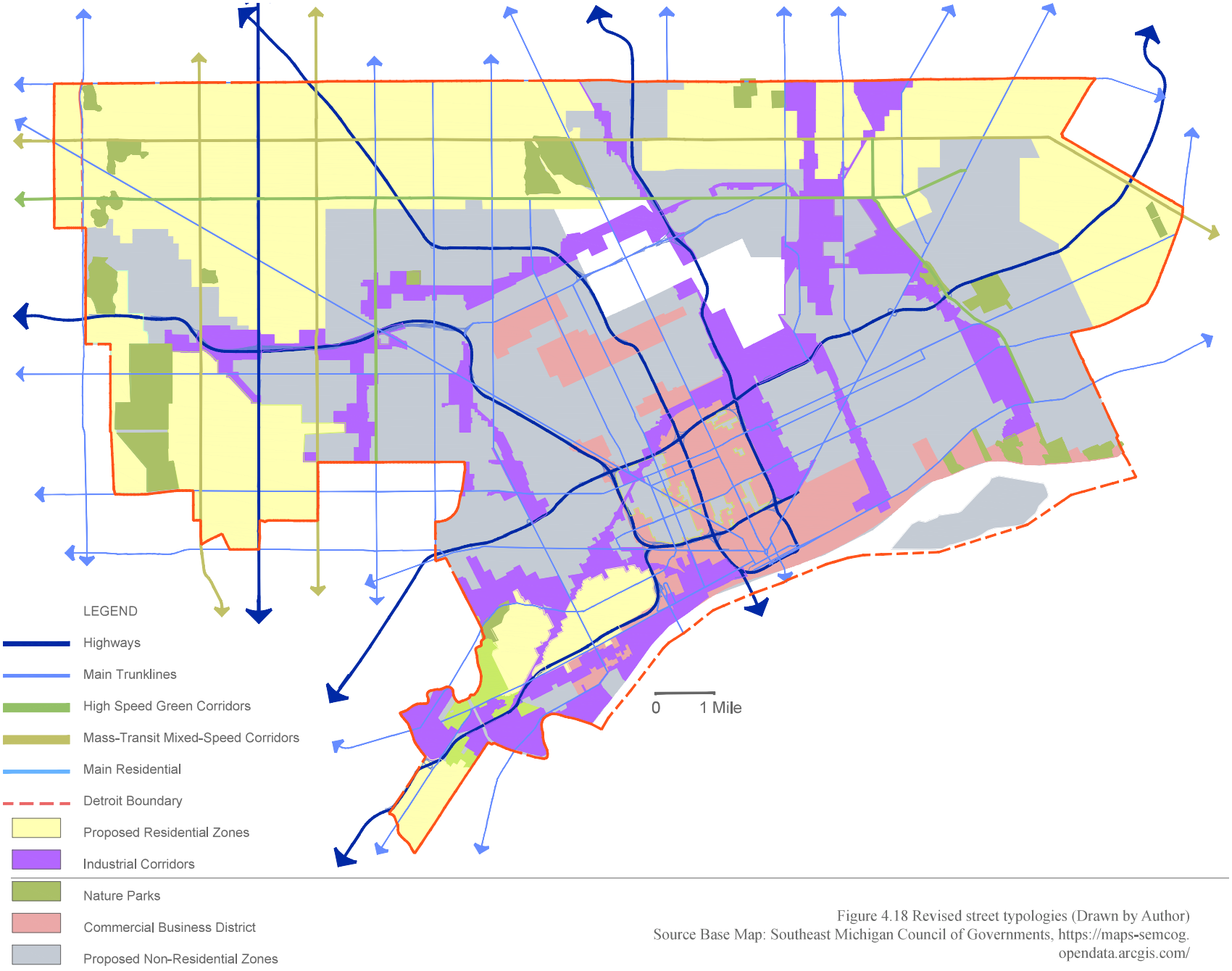

Figure 4.18 Revised street typologies (Drawn by Author)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Step 6. Identify Density Gradients

Christopher Alexander notes that people like to live in an area with a particular density and activity level. Some choose to live close to shops and services whereas others prefer quiet streets. It is vital to create a variety of density zones for each neighbourhood. These density zones will vary for each neighbourhood geometry and culture *(fig. 4.19)*.

According to Alexander 20% people prefer to live close to commercial centers, 60% within four and six blocks away and 20% more than six blocks away, farther in the quiet zones.[13] He suggests a density gradient within each neighbourhood unit of roughly 5,000 to 10,000 residents. The concept of urban transect, drawn by Andres Duany and rooted in ecology, further clarifies density zones. For Duany, the urban zones are realized through careful appropriation of land use and classified according to various urban densities. The various densities represent a gradient of choices for housing density, as the classification proceeds from natural zone to urban core. In his book, *The Smart Growth Manual,* Andres Duany states that each zone has a certain functional autonomy as long as the internal processes are mutually supportive. [14] This means that a very high density core could physically abut a natural zone and not have any negative impact on each other as long as its internal processes are well sustained. Here he cites the example of Central Park New York that has highly preserved ecological gardens and recreational activities, abutting Fifth Avenue with heavy traffic, commercial and corporate typologies.

By creating density gradients, each neighborhood district now becomes a polycentric entity. Each high density node can have its own local image and physical identity when further infused with a mix of land use appropriate to existing urban conditions. The success of this polycentric, yet continuous urban fabric rests heavily on creating a well-mixed land-use grain. When classifying a good city, Kevin Lynch places a much higher emphasis on these performance dimensions of a neighborhood than attaining a certain theoretical neighborhood density.[15]

—To assert that the ideal density is twelve families to the acre, or the ideal daytime temperature is 68° F., or that all good cities are organised into residential neighborhoods of 3000 persons each, are statements too easily discredited.[15] —

Kevin Lynch, A Theory of Good City Form, (1981) Pg. 111

— Density, grain, and the access system – the internal texture of a city – are the principal features by which we may judge its performance. The nature of its growth and change are equally important, but we know rather little about those effects. A city's size and its outline on a map may be much less critical than we had thought. [16] —

Kevin Lynch, A Theory of Good City Form, (1981) Pg. 275

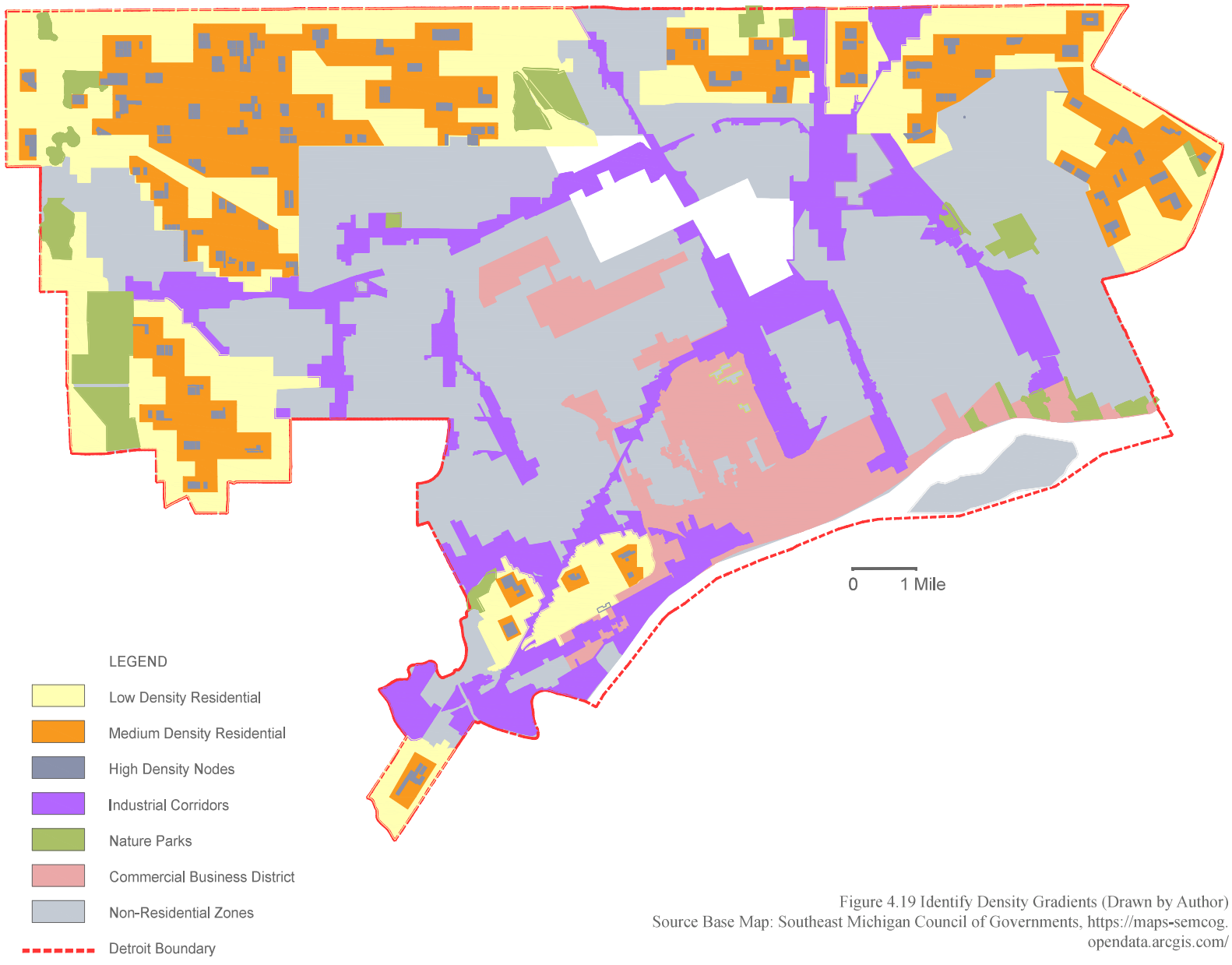

Figure 4.19 Identify Density Gradients (Drawn by Author)
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Step 7. Revise Boundary Definitions

Responsive boundary definitions are required to reduce the interference between urban districts and the adjacent incompatible land use or toxic high vacancy trends. This strategy also allows freedom to alter individual parts without negatively impacting the system flows to other areas.

This idea places great considerations to boundary zones, where in the case of a future expansion, a boundary zone could have the ability to shrink or expand. According to Lynch, neighbourhood borders and fracture lines need special treatment. Areas abutting highways, industrial zones and railway tracks are prone to higher vacancy. Physical borders also become social borders as Lynch states.[17] This is likely due to the fact that the streets leading into these structures are mono-functional and not fully activated, becoming a dead-end zone. This could be mitigated by changing the zoning around urban borders to such land-uses that can benefit from the existing conditions and require minimum resources. The goal is to intensify urban processes around each type of perimeter. Kevin Lynch, views these edges as dominant barriers and proposes to reduce the impact of these barriers by opening up visual connections on both sides of the edges, making it more of a seam than an edge. This idea sets off voluntary surveillance mechanisms through well activated streets.[18]

The first of these revised boundary conditions focusses on urban edge conditions next to industrial corridors. The intervention model proposes the residential blocks located next to industrial corridors to be rezoned as live-make structures *(fig. 4.20)*. These structures can be owned by residents interested in creating light industrial ventures. The structures would be retrofitted to comply with current building codes for fire and life safety. These residents can leverage the existing infrastructure serving the industrial activity while the ownership of parcels sets off voluntary surveillance processes.[19]

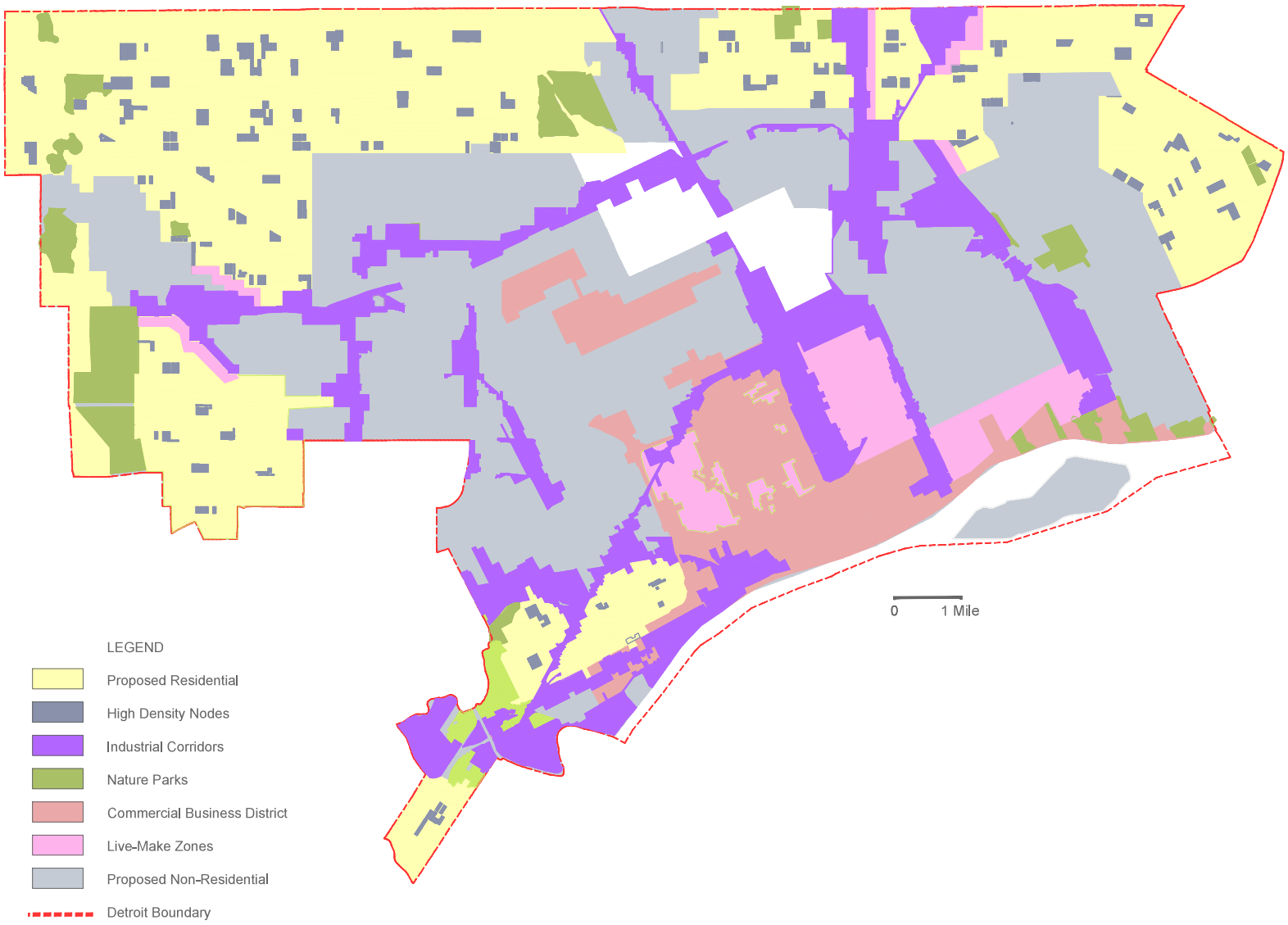

Figure 4.20 Create Live-Make Zones
Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

The second boundary definition focusses on vacant lands along neighborhood district edges. Once the lands are carefully soil tested and remediated, if required, these parcels can be used for agricultural purposes and as community gardens, as seen in Figure 4.21. The existing structures located on these blocks could be assessed for structural integrity and adaptively reused as tool storage and possibilities of indoor farming and green houses.

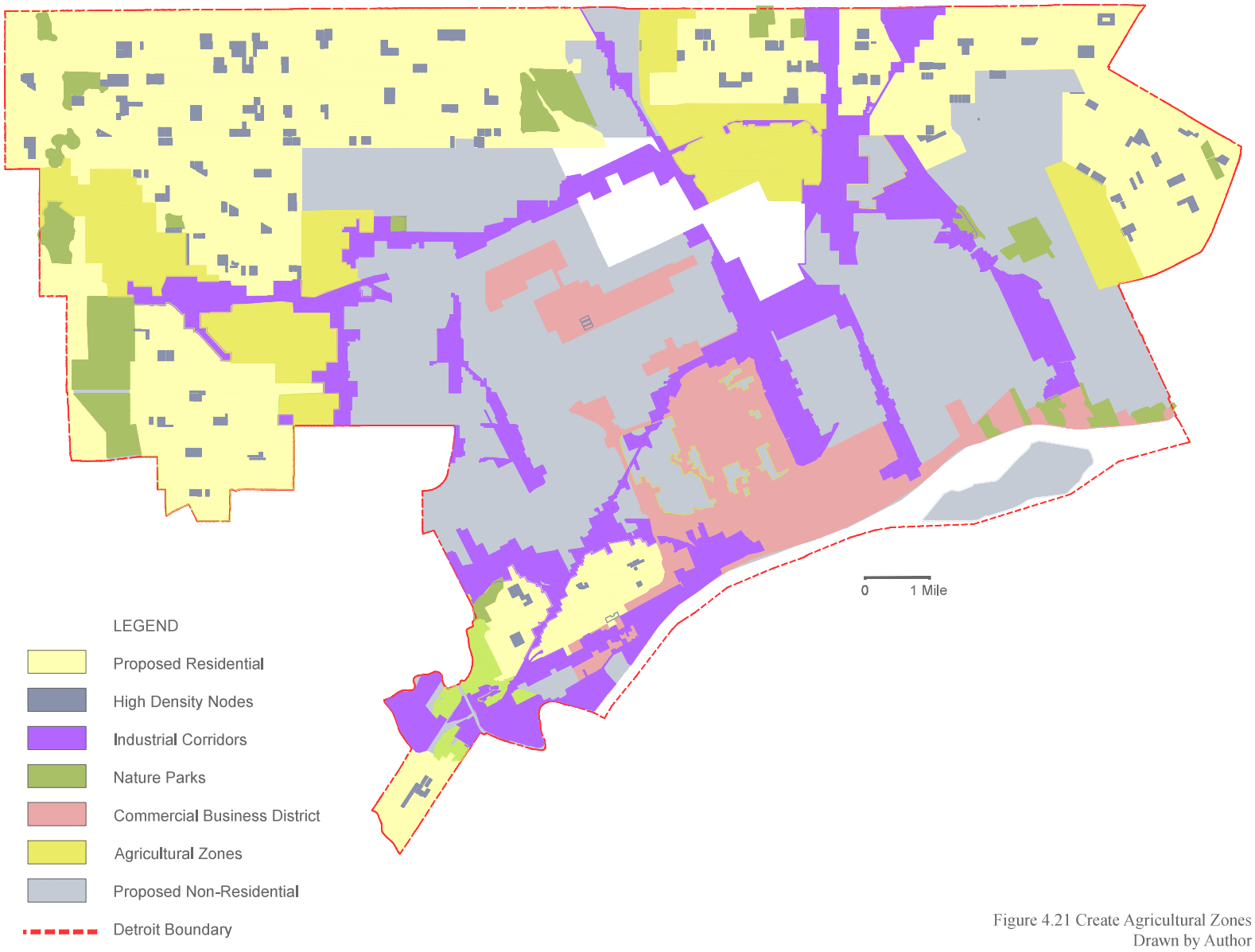

Figure 4.21 Create Agricultural Zones
Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

For a system to become sustainable it has to be flexible and embrace transcience. Flexibility describes the systems ability to absorb change. According to Bergevoet and Tuijl in their book *The Flexible City*, one way of becoming future ready is to leave zones of empty land with flexible zoning.[20] Here future use can be imagined and created when required. Proposed fallow land borders are suggested in areas where indeterminancy is high within its adjacentcy Figure. 4.22.

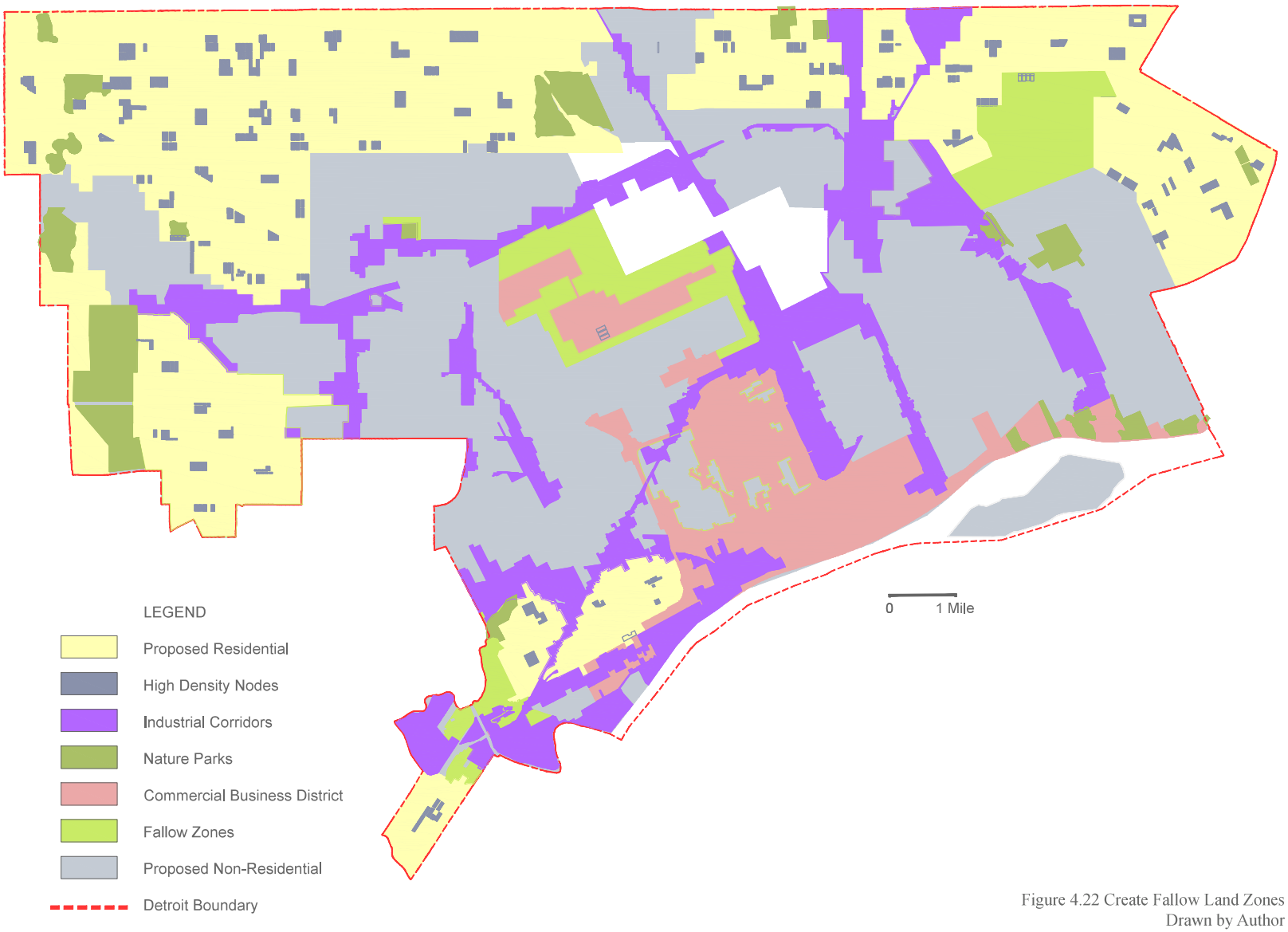

Figure 4.22 Create Fallow Land Zones
Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Step 8. Programming the Voids

The nineteenth century planning views, separates ‘nature’ from the ‘urban zones’, framing it as a ‘culture verses nature’ dialectic parlance. Landscape urbanism realigns the agency of landscape design as a discipline where contemporary urbanism can be shaped and defined by landscape and not the other way around. This paradigm shift brings back the discussion on how to contextualize the relationships between the humans, the built environment and the nature. As planning gains awareness of the negative impacts of post-Fordist urban models this central question of ‘man vs. nature’ becomes more critical. The leading contemporary theories for urban planning all realize the importance of creating densely populated, walkable and pedestrian friendly neighbourhood concept. The clash of opinions rests in what shapes the programming in urban contexts. Conventional planning employs buildings to shape and narrate the definition of public versus private spaces, landscape urbanism views it otherwise. Landscape urbanism has agency to shape urban spaces by balancing the sense of architectural environment with randomness of natural. The built and the natural can co-exist and perhaps stronger together. It takes root in the Olmsted-ism, where America experienced big chunks of nature in New York City that was affected by industrial aftermath. The prognostic, intense corporate activity created fear of a hypertrophic future growth. Olmsted, through the design of Central Park as seen in Figure 4.24, and James Corner as the design lead for High Line project restored nature to the urban environment as seen in Figure 4.23.

This concept has agency to bring life to voids within Urban Zones as well as reprogramming of larger naturalizing Void Zones outside urban areas as shown in Figure 25. Four types of proposed landscape zones are, Generative Landscapes, Water Management Landscapes, Bio-Diversity Landscapes and Fallow Lands.

Fallow Lands; areas within or abutting urban zones will remain unbuilt and dedicated as green zones for future building. These fallow lands can be used as boundary or buffer zones until urban zones are fully populated and densified and require to expand.

Figure 4.23 High Line Trail, New York City
Photo by Author

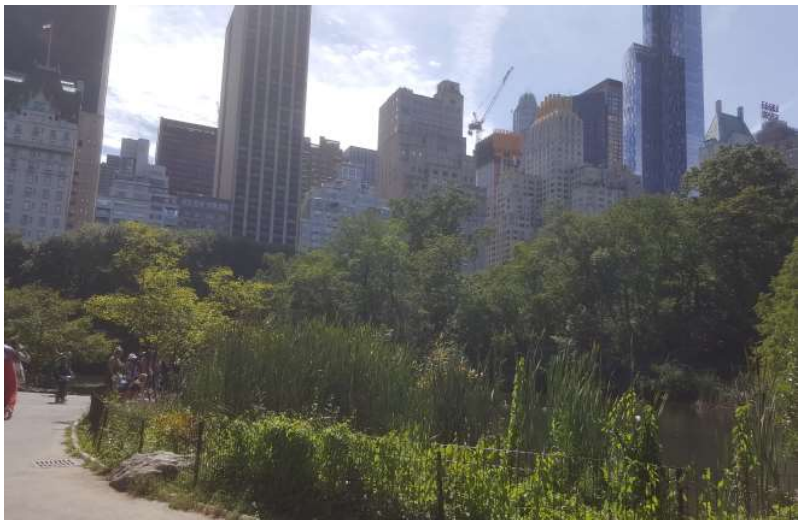

Figure 4.24 Central Park New York City,
Photo by Author

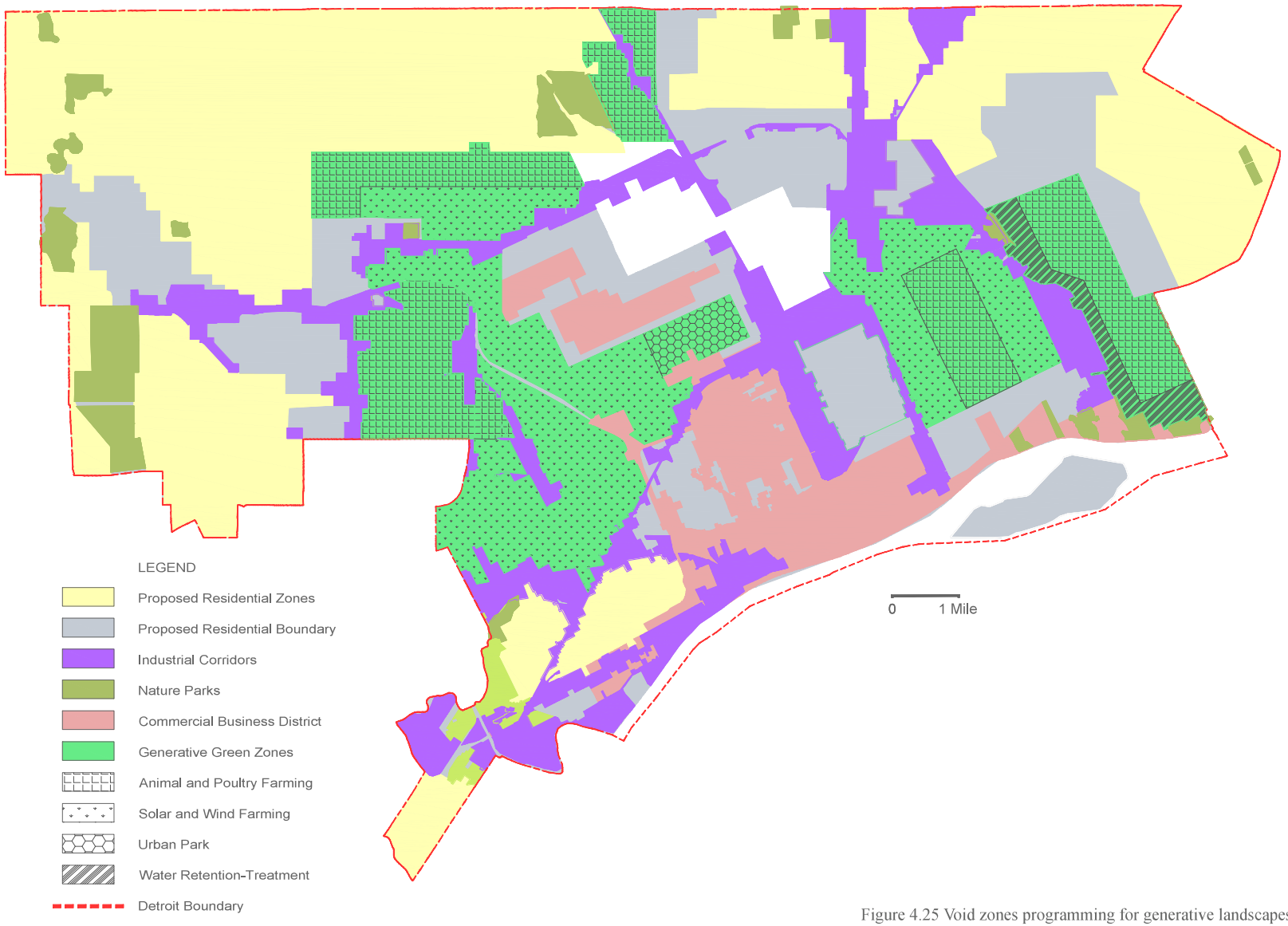

Figure 4.25 Void zones programming for generative landscapes.
Drawn by Author
Source Base Map: Southeast Michigan Council of Governments, https://maps-semcog.opendata.arcgis.com/

Step 9. Incremental Densification Approach

Implementation of an urban intervention is a complex, muddling process that requires extreme caution. To be sustainable, the process has to work its way incrementally and systematically through user participation and transdisciplinary collaboration. The intervening processes need to be flexible within each holarchic level and generate iterative feedback loops that are constantly engaged with the residents, community leaders and municipal stakeholders. Architects Tom Bergevoet and Maarten Van Tuijl, in their book *'The Flexible City: Sustainable Solutions for a Europe in Transition',* identify four key controlling processes or conditions, that require flexible management throughout the spatial development phases in order to be sustainable. These controlling processes are grouped as, legal, financial, spatial and organizational, as depicted in Figure 4.26.[21]

Legal processes pertain to matters of policies and by-laws that govern the land-use, construction standards, also land and deed transfers during relocation and settlement. Since Detroit is not a tabula rasa and removing streets and sub-surface infrastructure, would be an economic-urban feat. Using the existing streets and working with existing grid is the first constraint. The existing by-laws, especially in the 'strong zones' could continue to govern the structure setbacks and land-use. In the 'opportunity zones' the legal structures would require new flexible and soft-policies which can respond to local objectives and contexts. Time-based exemptions, temporary and partial permits, use-variance, re-zoning and long-term lease are a few examples of soft-policies.

Financial processes analyze a project's financial feasibility ensuring viable property values or revenue generated from the investment venture. Financial policies would also require flexibility. Tax-breaks, subsidized transactions or perhaps time-based criteria to allow residents to gather resources through alternative methods such as crowd funding or micro-financing are a few examples. Soft financial policies can respond to individual needs and transient financial conditions. In terms of payment of construction work provisions could be made for residents to pay in goods, services or hours of work as in social cash.[22]

—Much of the agenda of adaptive management is learning through experimentation rather than focusing on error avoidance. Adaptive management is not meant to displace anticipatory management but rather to complement it. The program of post-normal science is to provide a basis for the understanding necessary to unravel complexity (emergence, irreducible uncertainty, internal causality), so that we may successfully anticipate, when possible, and adapt, when appropriate or necessary, to changes in the self-organizing systems of which we are an integrated and dependent part.[23] —

James J. Kay 1999

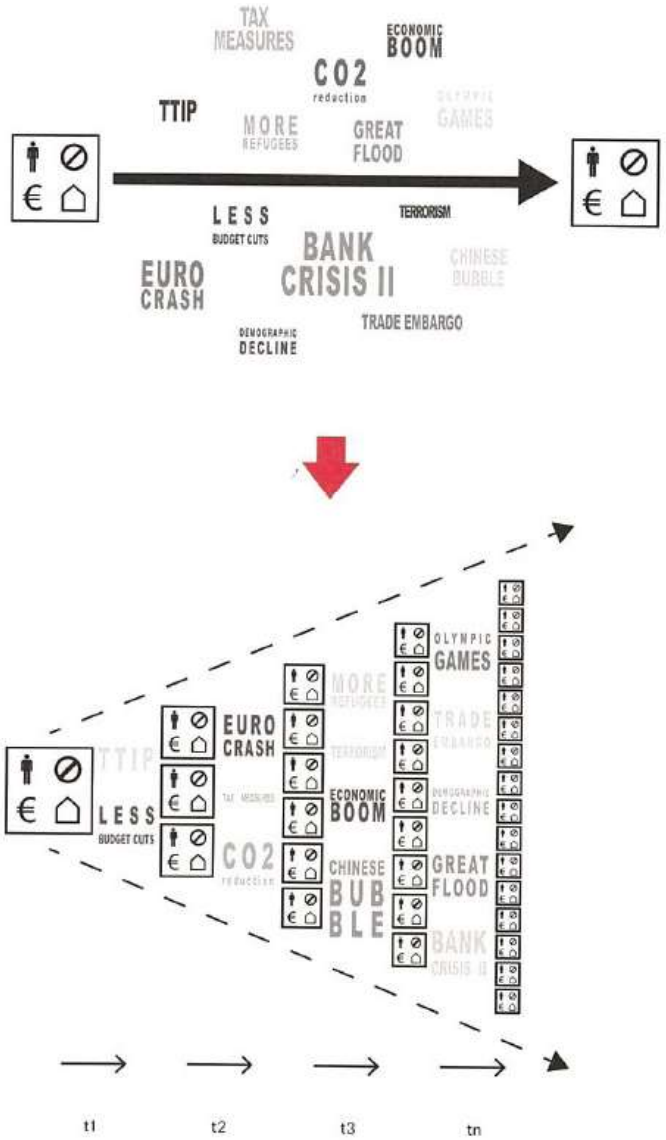

Figure 4.26 An Adaptable and Flexible Intervention Framework
Source: Tom Bergevoet, Maarten van Tuijl ,
The Flexible City: Sustainable Solutions for a Europe in Transition, (2016)

Spatial processes define the tools for designing adaptive spaces for the end users. Detroit is not a blank slate, the inhabitants are very attached to their properties and current neighbourhoods. Detroit needs to re-shape itself within an existing built environment and build upon the resident's attachment to their neighbourhoods. Design tools can range from adaptive reuse of existing buildings, repairs and façade upgrades of occupied structures, to pre-cycling, a concept where the materials or set of structures can be re-used for other future uses in future. Flexibility can also be integrated by designing spaces that are multi-functional. Temporary structures can be useful to design public spaces, community garden integrations and street calming. Designing residential units that can be multi-use through live-work or live-make typologies. In case of adaptive re-use, maintaining the historical built aspects of the buildings can create a stronger bond to it by the new user group, this can also be done through the process of building with recycled materials with a strong historical connection. Art structures can be installed for graffiti artworks creating new neighborhood identity that is rooted in the current and reflective of Detroit's past.

Organizational processes pertain to matters of governance and administration. During various phases of incremental densification, these processes could be made flexible, efficient and cost-effective through an integrative approach. Adaptive governance involves all parties related to a job at early stages of the project. This makes the project and its administration much more aligned to the demands of the user group and eventually, future-proof. The concept of co-creation will involve regular meetings, workshops and surveys with the user group, financial stakeholders and the professional teams. The process is exceptionally useful in managing client expectations and since there are no surprises the end users tend to occupy the buildings and care for them for a longer period. Once a neighborhood has been densified to gain vitality within its urban processes the role of adaptive governance remains ongoing to maintain future vitality by dealing with indeterminable and transient urban processes.

Future Detroit governance has the task to strategize the design requirements for each neighbourhood unit and define its design goals. That is a process that can only be undertaken by a transdisciplinary team, shall we name it the 'Think Tank'. The Think Tank, would have to be made up of community leaders, representatives of the municipality, professionals and any financial or philanthropic stakeholders.
The process begins with the study of existing controlling processes along with an analysis of its urban subcultures. This could be done zone by zone for better management. Town-hall meetings, surveys and workshops are to be conducted at this phase. Reliable information and feedback flows are vital for the success of devising a workable plan that all can agree upon. Once the design goals over the next few phases have been synthesized and agreed upon the process can move to implementation phase. Through the implementation phase Detroit neighbourhoods would identify density zones and incrementally activate each zone in phases using this approach, explained in Figure. 4.27.

Incremental densification processes can be initiated once neighborhood districts are fully defined and neighborhood actors are identified. The process begins with an in-depth analysis of the existing conditions. The residents would assess local conditions within each neighborhood district and specific needs for each zone will have to be analysed.
In order to induce a voluntarily relocation from weak areas to designed neighbourhood clusters, the strong zones would have to lead the process through infill. The main street typologies would be revised and civic and commercial nodes activated incrementally in five phases. Each phase is approximately expected to last five years, thereby forming a twenty-five year process to reach the density goals for the district. Once again this model proposes these timelines as a guide and are approximations estimated based on time required for activities within each phase. The incremental densification is designed as an animated set of processes such that before and after each phase the actors are able to assess the impact of each intervention and adjust the course of activities within next phase.

Neighbourhood District Densification Process;

1. Analyse Neighborhood Profile
2. Analyse Built Fabric: Identify Zones
3. Revise District Boundaries
4. Set Density Goals
5. Revised Street Typologies
6. Propose Density Gradients
7. Revise Boundary Definitions
8. Void Programming
9. Adaptive Governance
10. Incremental Densification: Five Phases

The approach to this model will be visualized in the next chapter, through implementation within one of Detroit's north-eastern neighborhood.

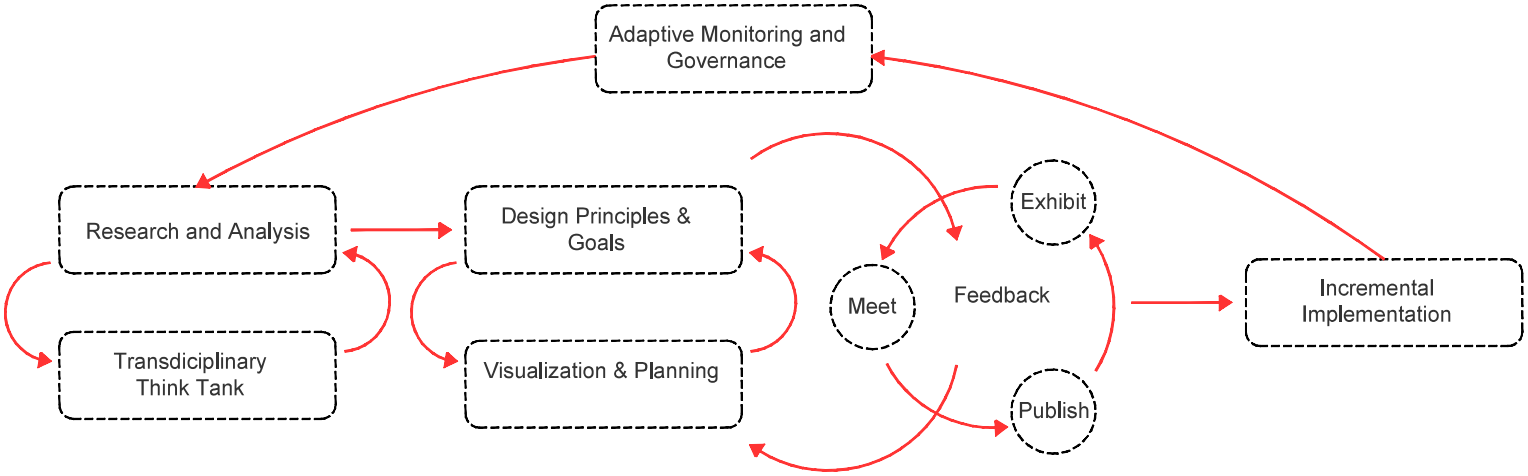

Figure 4.27 Design Implementation Approach,
Source: Drawn by Author

Chapter 4 Endnotes

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Chapter Five

OSBORN

5.1 Osborn Neighborhood

Osborn is a neighborhood at the northeast edge of Detroit. It has an area of roughly four square miles, bounded by Gratiot Avenue at east, Van Dyke Avenue at its west, McNichols Road to its southern edge and the Eight-Mile road forming the northern edge of the city at its north. In 2010 Osborn had a population of 27,166, compared to its population of 37,358 in 2000, a 27.3% decline. By 2016, according to 2012-2016 American Community Survey 5-Year Estimates, Osborn population has further dropped to 24,137.[1]

Nonprofit community organizations such as the Skillman Good Neighborhoods Initiative, Life Remodeled, MAN Network and Osborn Neighborhood Alliance to name just a few are committed to stabilize the community and improve the quality of life for Osborn residents.

Despite all their efforts, Osborn continues to experience a high mortgage foreclosure rate and abandonment. Most of the structures were built in 1921 through 1926 according to historic records, are roughly 90 years old and in a state of disrepair.

The neighborhood assets include parks, schools, churches, grocery stores and community centers. Osborn has areas of high vacancy as well as blocks that are intact as shown in Figure 5.2, Osborn has a higher percentage of owner occupied houses showing stability aspects of neighborhood. Osborn also has lower percentage of fire damaged houses and a much lower parcel vacancy percentage compared to overall Detroit. This shows that Osborn has areas with trends of stability co-existing with blocks containing high abandonment presenting opportunity zones for an intervention It also presents a wide range of neighborhood boundary conditions such as main arterial roads, trunkline (8-Mile Road) with a heavy industrial corridor and large cemeteries cutting through the neighborhood. The variety of neighborhood conditions makes Osborn a good testing ground for the bootstrap intervention.

Following is an analysis of Osborn neighborhood's statistics, collected through reports by Data Driven Detroit and Wayne State University- Center for Urban Studies based on 2010 US Census.

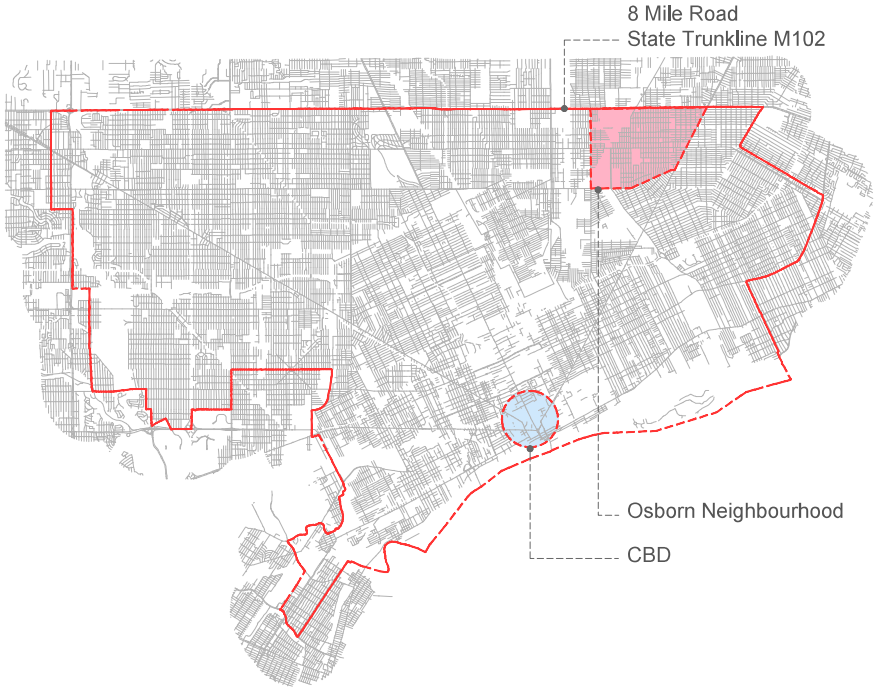


Figure 5.1 Location of Osborn neighbourhood in red, shown here with existing neighborhood boundary.
Drawn by Author

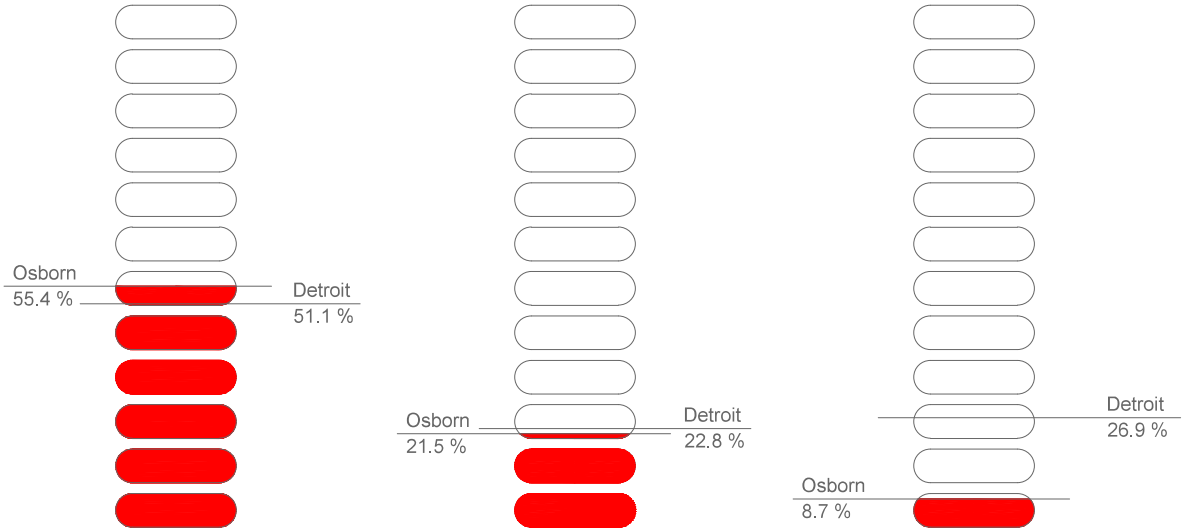


Figure 5.2 Osborn Housing Statistics (Photos by Author)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

5.2 Osborn Neighborhood Profile

According to data presented by Data Driven Detroit studies done for Skillman Good Neighborhood reports, in 2009 Osborn had a population density of 7601.1 persons per square mile compared to Detroit which had a population density of 6601.9 persons per square mile. This suggests that Osborn is actually one of the more populated areas compared to overall City. Based on 2010 census, Osborn had a population of 27,166 residents.

Osborn has 69.7 percent family households and 30.3 percent non-family households, according to Data Driven Detroit reports based on 2010 US Census.[2]

Out of the family households with children under 18 years of age, 63.7 percent are female-headed, 9.8 percent are male-headed and only 25.6 percent are headed by a couple. The number of female-headed households is significantly higher than the overall Detroit average. As seen in Figure 5.3 and 5.4. The number of households without a vehicle are lower compared to Detroit whereas the number of persons who are unemployed within age of 20 to 64 years of age is even higher than Detroit numbers.

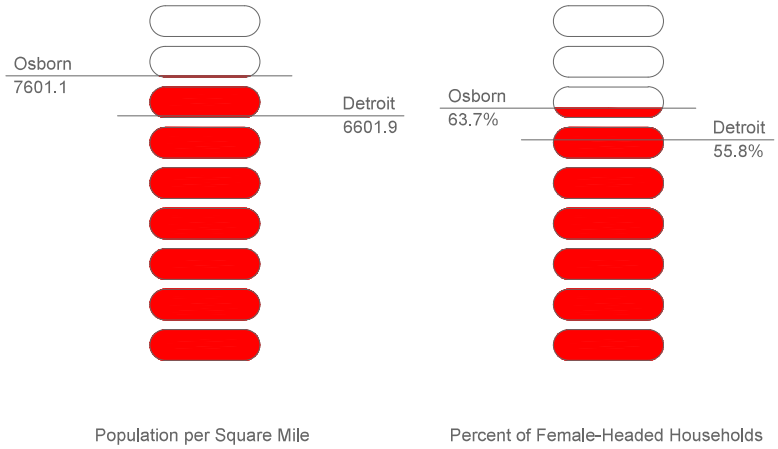
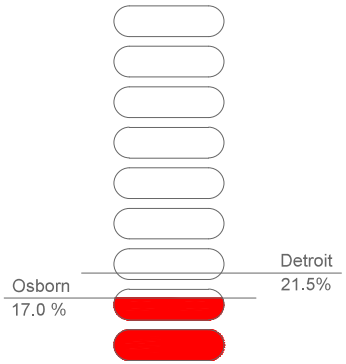
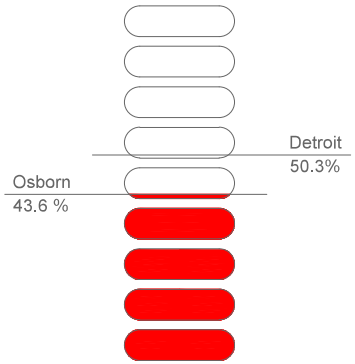


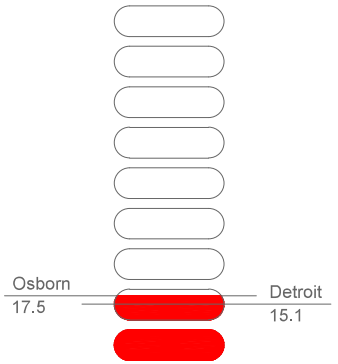
Figure 5.3 Osborn Miscellaneous Statistics (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf



Percent of Households
with No Vehicle Available



Percent of Children Less
Than 6 in Poverty



Percentage of Unemployed Persons
Age 20 to 64

Figure 5.4 Osborn Miscellaneous Statistics (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

Due to a steady population decline, the ethnicity numbers compared to 2000 census show that although people of all ethnicities are leaving Osborn, the rate of departure of all other ethnicities other than black is greater. The ethnic composition of Osborn reveals the largest ethnic group is black and due to higher departure of people of other ethnicities, the share of people of black race increased from 84.1 percent in 2000 to 91.3 percent in 2010,[2] as seen in Figure 5.5 and 5.6. Osborn, like the rest of Detroit, needs a healthy ethnic diversity however it will take a lot of time for people outside Detroit to see the City as a safe and viable place where they can raise children and families.

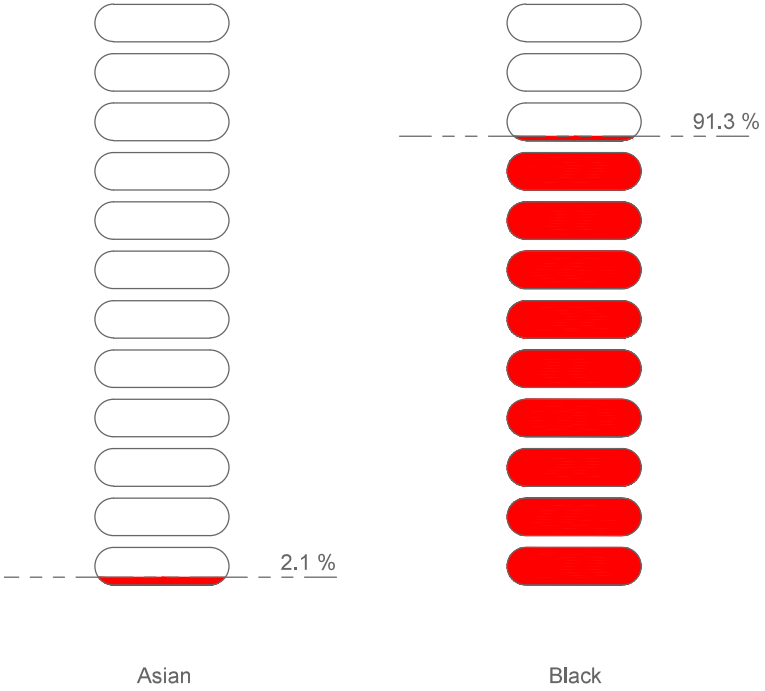


Figure 5.5 Osborn Ethnic Composition (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

Figure 5.6 Osborn Ethnic Composition (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

The families outside Detroit might consider Detroit an unfit place to raise children, however, the families within Detroit certainly seem to prefer Osborn. A review of the population distribution by age within Osborn suggests that the two smaller age groups are the children under the age of 4, and the seniors over 65 years as seen in Figure 5.7 and 5.8.[2] The three remaining age brackets are fairly equally distributed. These are the age groups that are fit for training and education as well as employment, once a process oriented urban configuration has been achieved.

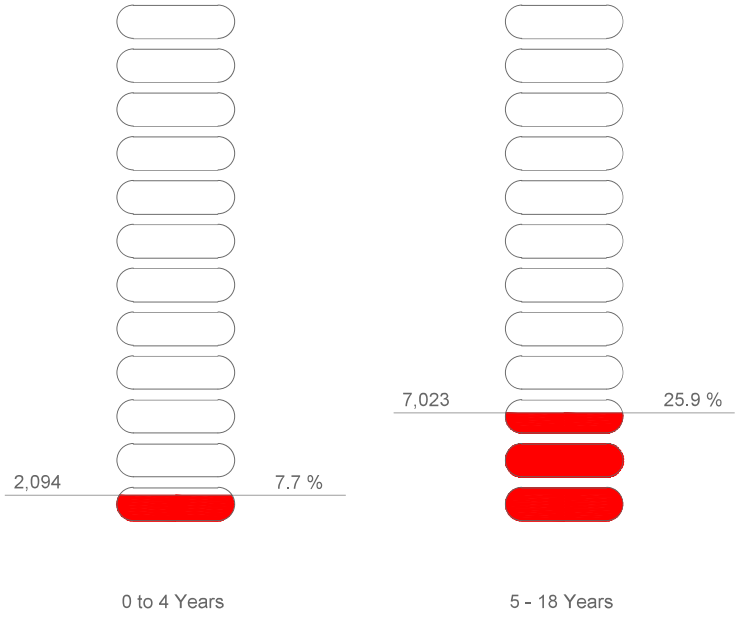


Figure 5.7 Osborn Population by Age (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

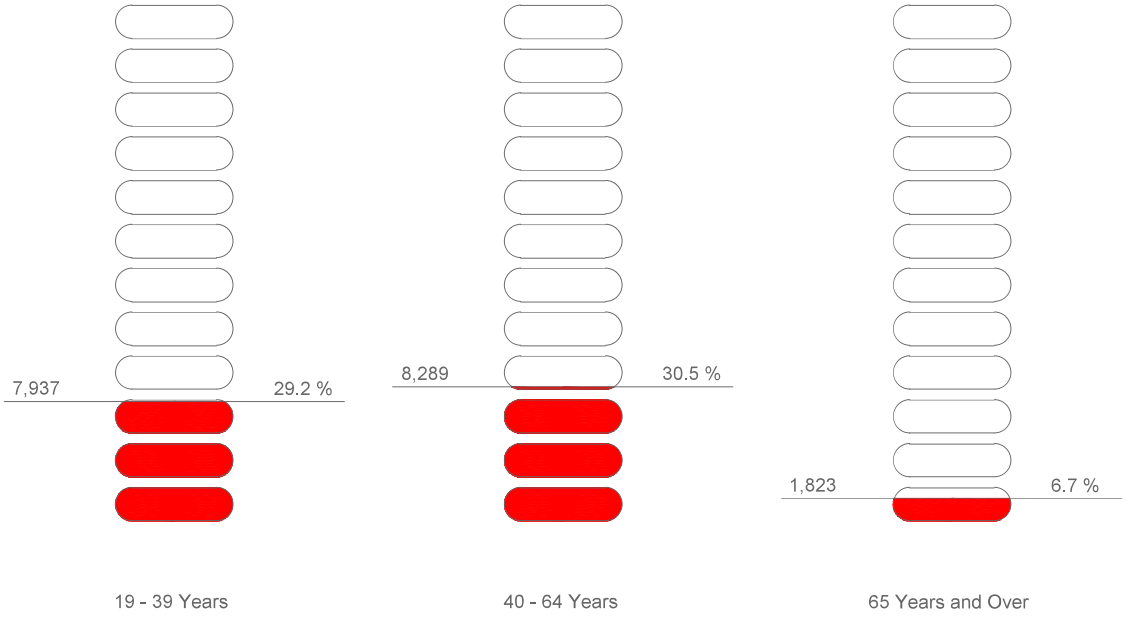


Figure 5.8 Osborn Population by Age (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

Out of 9,085 total number of households within Osborn, female-headed housholds make up the largest houehold type within Osborn. The second houhold type is the singles living in Osbron wherease households headed by married couples takes the third spot as seen in Figure 5.9 and 5.10. The population decline within Osborn from 2000 to 2010 brought the greatest change in married couple housholds, a whoping 42.8 percent drop whereas the female-headed households are the second fastest decreasing houehold type with a rate of change at 15.8 percent. According to reports by Data Driven Detroit,[2] these facts are well supported by the numbers indicating the greatest decline in the population of children under 18 years of age and the married couples with children under 18 being the highest population to leave Osborn. Incremenatl densification could play a major role in retention of households with children since the process introduced by a dense walkable community are conducive to raising children in a safe and healthy urban environment.

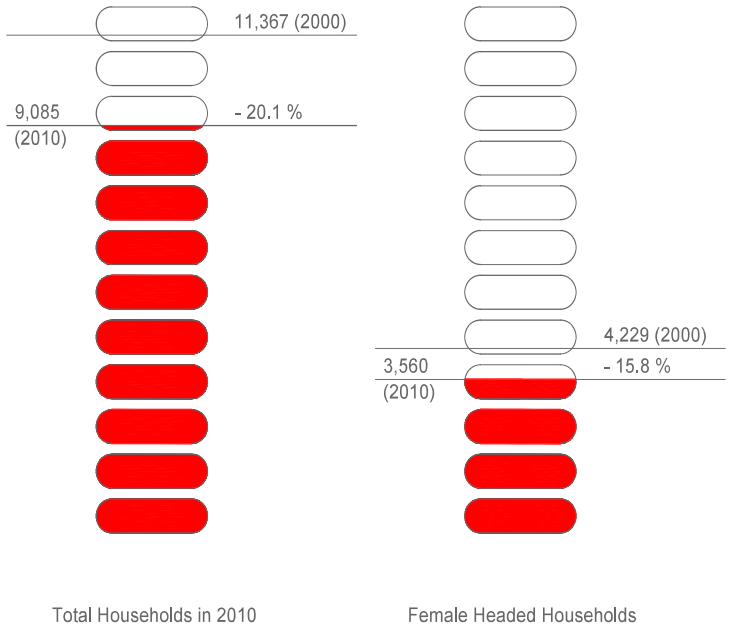


Figure 5.9 Osborn Household Structures (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

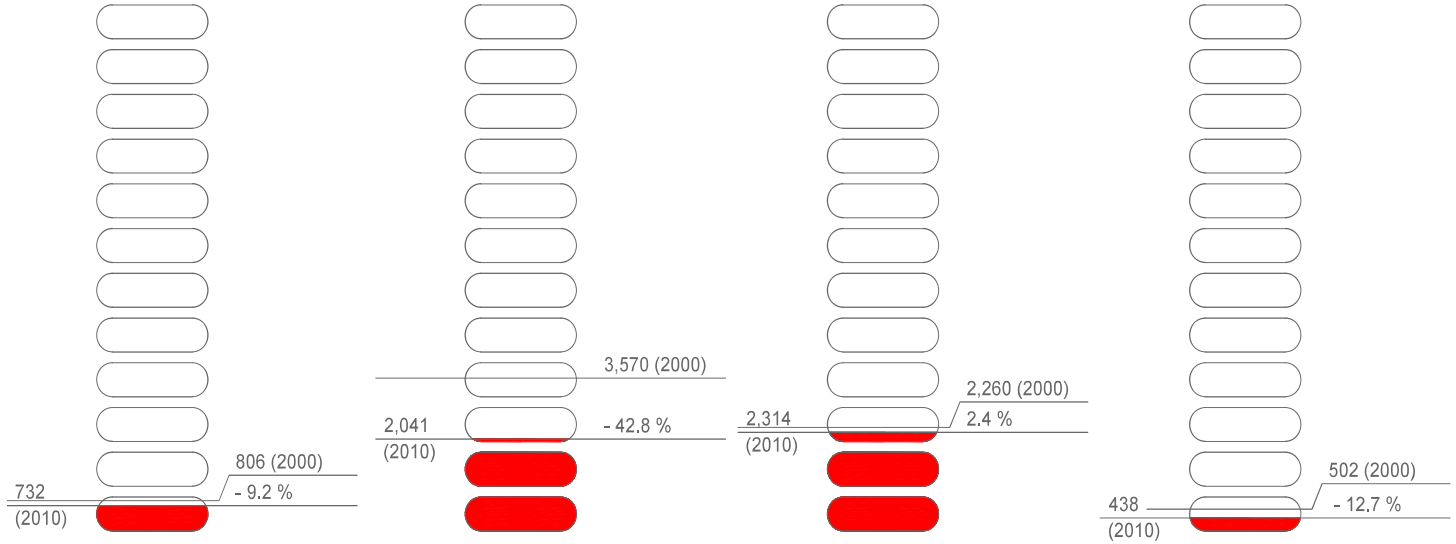


Figure 5.10 Osborn Household Structures (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

The composition of income groups present within Osborn, as reported by Data Driven Detroit reports have two notable income groups, first $14,999 or less, the other $ 50,000 or more.[2] Osborn needs desperately to push the lowest income group levels up towards the higher income levels. Incremental densification has great potential to support small entrepreneurial ventures that could potentially boost the numbers of people within low income levels by offering adult-education, semi-skilled labour and small business entrepreneurship.

The number of jobs per resident available within Osborn has declined from 0.24 in 2002 to 0.15 in 2009 whereas the number of residents within labour force has declined from 0.89 to 0.48 in the same years as shown in Figure 5.11 and 5.12. This could be because people employed within higher income jobs were actually working outside of Osborn and moved outside of Osborn in this duration. Thus leaving behind residents employed within lower paying labour jobs who were incapable of relocation and continued to be employed within lower paying jobs possibly located within Osborn.

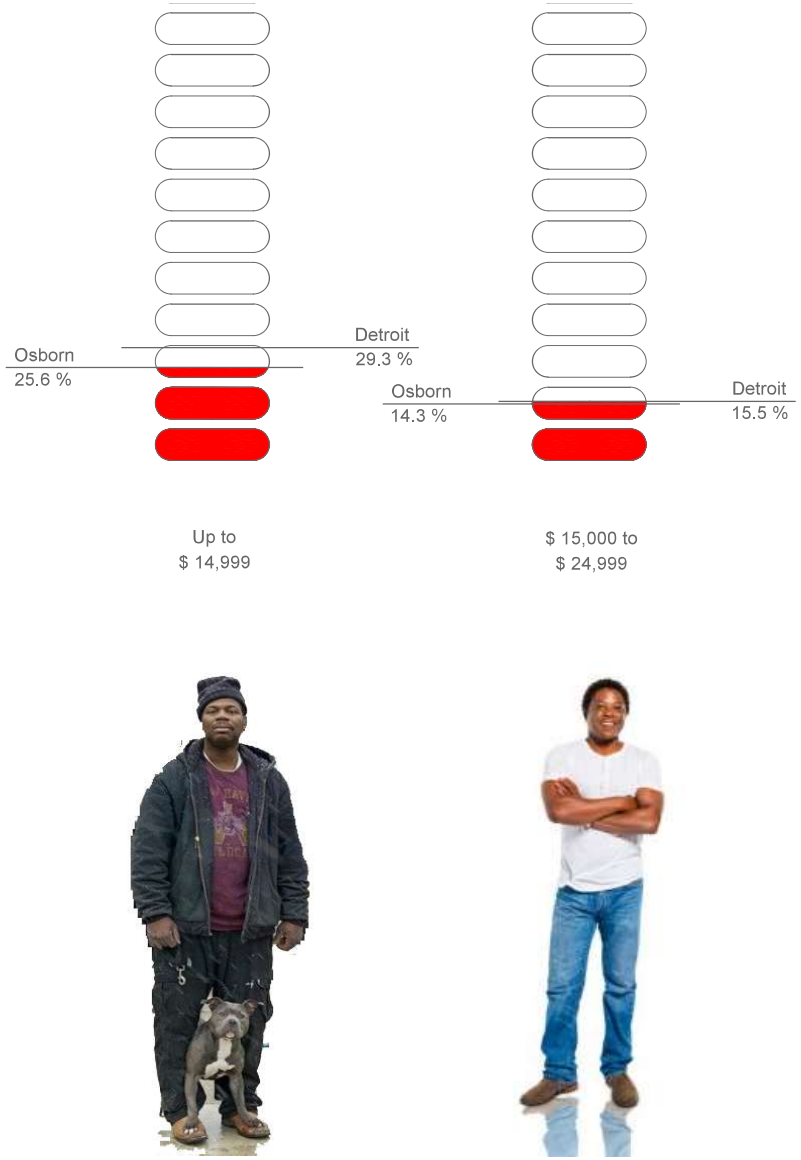


Figure 5.11 Osborn Household Income by Category (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

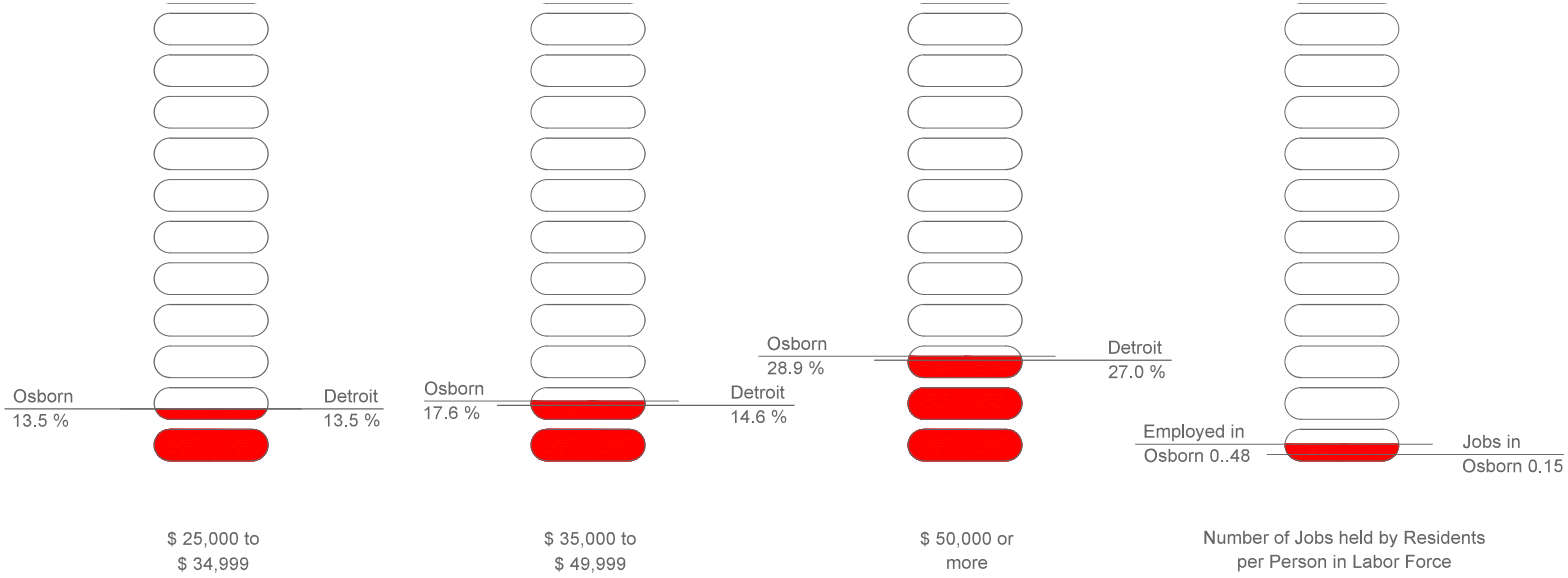


Figure 5.12 Osborn Household Income by Category (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

This analysis is further supported by the data for educational attainment in Osborn Figure 5.13 and 5.14. With the largest number of residents have a high school diploma or equivalent, roughly 40.8 percent whereas the second highest share of residents, 23.9 percent have attained high school level with some college experience without getting a degree.

This suggests that Osborn could benefit greatly by developing adult education programs and introducing skills training through hands-on closely mentored small-scale ventures. The age distribution data presented in Figure 4.23c also supports this idea, since the largest numbers of age groups represented within Osborn are between the ages of 5 to 64 years.[2] Incremental densification could be a great way to slowly introduce and boost certain small scale ventures that have potential to develop the high school graduates by training while on the job and attain income security.

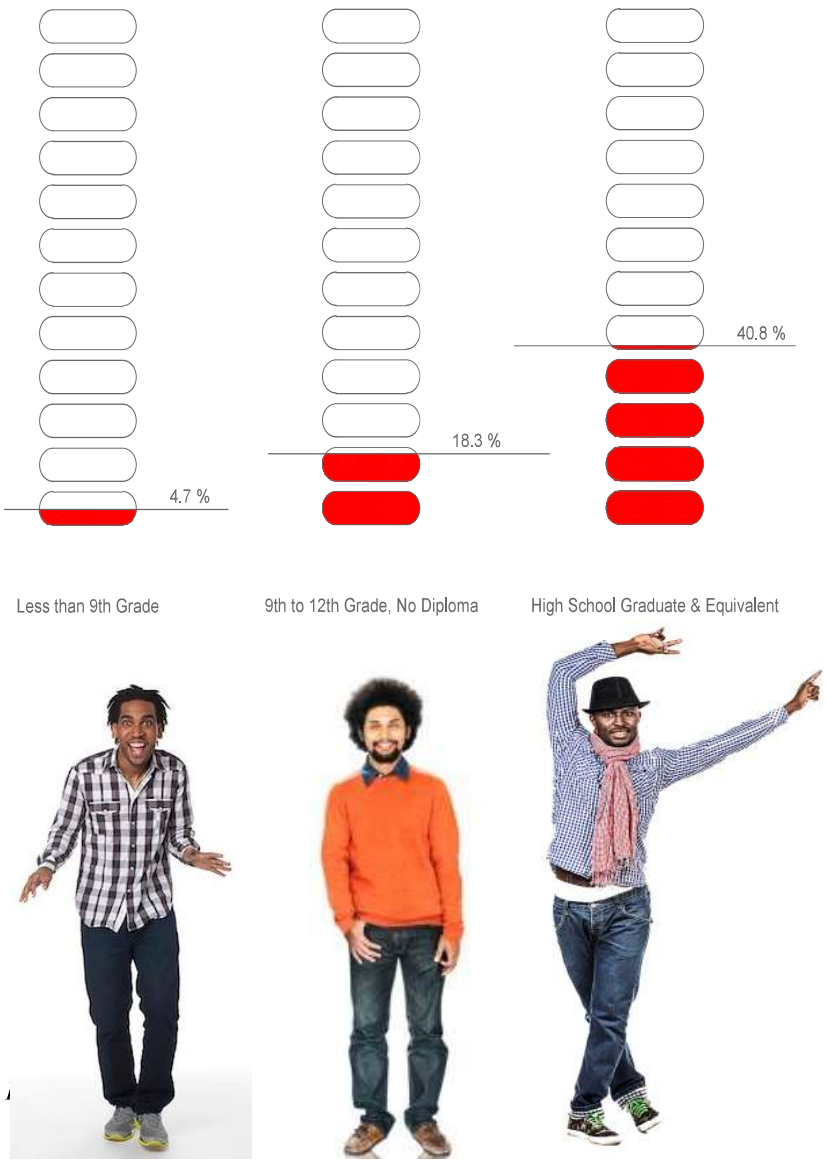


Figure 5.13 Osborn Education Attainment (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

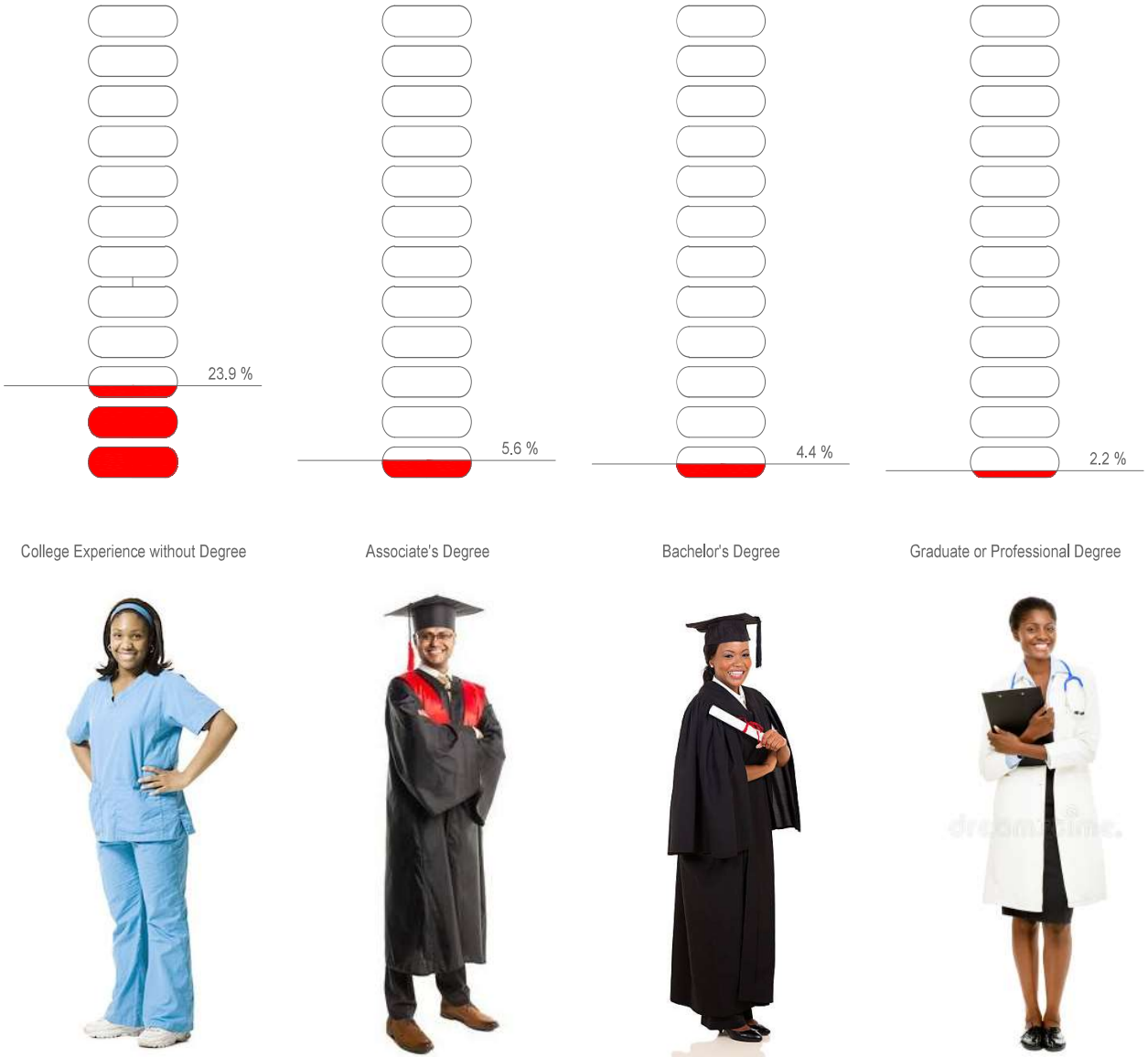


Figure 5.14 Osborn Education Attainment (2010)
Data Source: Data Driven Detroit,
https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

5.3 Osborn Design

For Detroit neighborhoods, a low ethnic variation creates a predominantly coarse grain of social class, activity, timing, and skills for instance. The grain segregation generally affects all other aspects; for instance, a coarse building typology grain creates a large social class grain, which thus created negatively impact the spatial grains through social and economic feedbacks. This is quite evident in the neighborhood of Osborn. A large neighborhood built using one dominant single-family housing typology, spaced using a street grid size that further discourages street vitality. This situation is made more complicated by the presence of large industrial corridors and inactivated community spaces such as large parks and cemeteries. Thriving suburban cities also have large urban grain within their neighborhoods, but due to functional economies their urban processes are not impacted negatively. Jacobs concept of a neighborhood district therefore plays a less crucial role in thriving urban environments but become indispensable within shrinking urban context. Forming a cohesive neighborhood district prepares the residents to organize themselves and stay ahead of urban problems.

If people are self-organising and given the right environment will endeavour to sustain themselves through resource exploitation then a sustainable city can be achieved if residents gain the ability to stay well-informed of their problems. Once provided with coherent neighborhoods i.e. City as a whole, Neighborhood Districts and Street Neighborhoods, the residents can form themselves into groups capable of voicing their concerns at various holarchic scales.

In order to develop into a strong neighborhood district, Osborn needs to recalibrate its neighborhood boundaries. Parts of neighborhood that are separated due to railway tracks and inactivated cemeteries have better potential to thrive if given up to adjacent neighborhood so as to forma larger whole. Likewise the areas south of Osborn with strong residential block should be added into Osborn so as to be spatially linked and stay fortified through future Osborn revival. A new neighborhood boundary is proposed as shown in Figure 5.15.

— An evolving "learning ecology" might be more appropriate concept for the human settlement, some of whose actors, at least, are conscious, and capable of modifying themselves and thus of changing the rules of the game. … The good city is one in which the continuity of this complex ecology is maintained while progressive change is permitted. The fundamental good is the continuous development of the individual or the small group and their culture: a process of becoming more complex, more richly connected, more competent, acquiring and realizing new powers – intellectual, emotional, social, and physical. If human life is a continued state of becoming, then its continuity is founded on growth and development.[3] —

Kevin Lynch, A Theory of Good City Form, (1981) Pg. 115

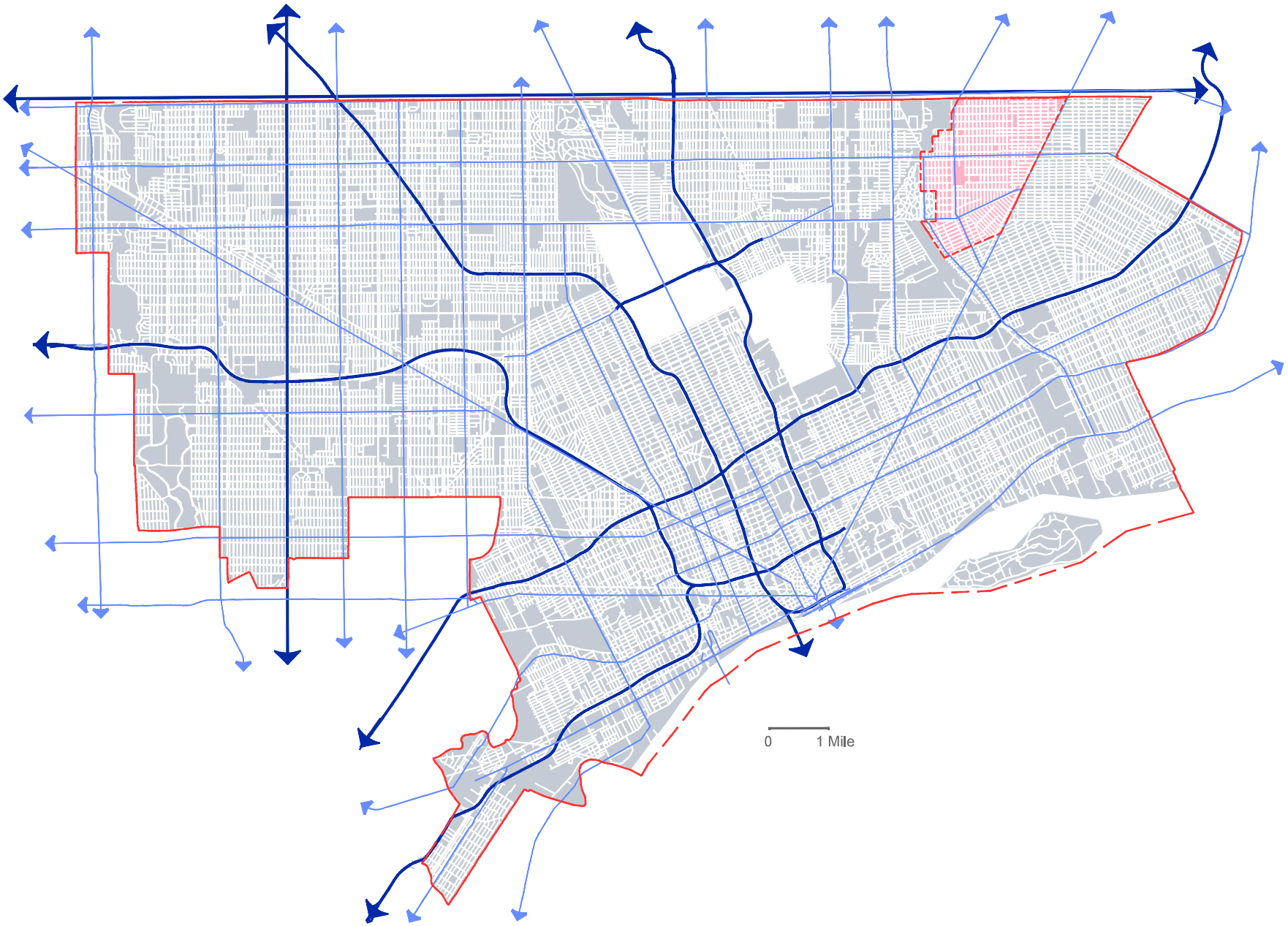


Figure 5.15 Location of Osborn neighborhood in red, with revised boundary.
Source: Base Map SEMCOG
Drawn by Author

Osborn's vacancy pattern is a great tool to determine which areas of the neighborhood shall remain part of the new Osborn district. The areas located to the north-west corner of Osborn are better connected through continuous street grid with the adjacent neighborhood. The blocks located beyond the railway tracks are therefore added to the neighborhood located to the west of Osborn. At the same time a stronger section of blocks is observed located to the south of Osborn, these blocks are surprisingly showing a low vacancy, although surrounded by high vacancy blocks located along its south and western boundary. These unusually stable blocks are proposed to be added to future Osborn district. Osborn boundary along Eight-Mile Road is a firm boundary since it is the extreme north border of Detroit. The areas close to Eight-Mile are strong blocks showing a low vacancy and therefore can be kept as is. The eastern neighborhood boundary along Gratiot Avenue is surrounded by high vacancy trends. These blocks of neighborhood have commercial, civic and retail properties along Gratiot Avenue and present as an opportunity zone for revving Osborn.

— A sustainable city is easily reused, adapts to the changing requirements of its inhabitants and is future-proof. A sustainable city is a flexible city. Changes are not standalone events, they are emphatically part of a process of continual transition. New developments do not lead to a fixed blueprint, rather they emerge from future-oriented, dynamic flexible planning, only then can truly sustainable solutions be found.[4] —

Top. Objective led, and time based intervention model for flexibility. Tom Bergevoet (2016)Pg. 42 - 48.

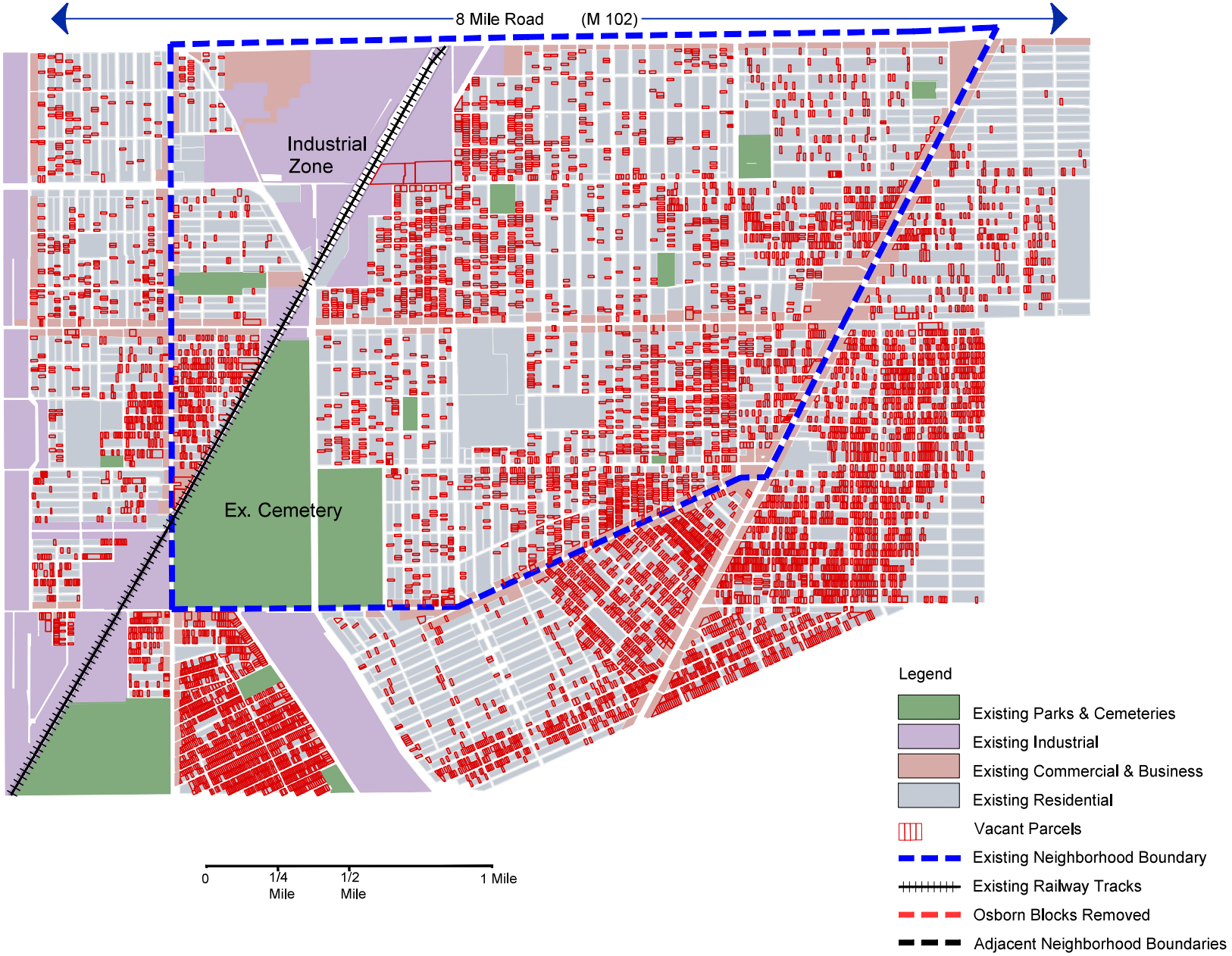


Figure 5.16 Osborn Vacancy Pattern overlay with current Neighborhood Boundary

Once Osborn neighborhood boundary is revised as shown in Figure 5.17, its future spatial elements can be analyzed using the existing vacancy trends as a guide.

In a spatial sense, fine grained blocks could be made up of smaller components of similar typologies, and closely fitted for a mix of uses. This would create a fine yet a higher density. The grain in an urban texture may be fine or coarse based on its size and scale. Another quality of urban texture is its sharpness or blur. Sharpness or blur represents the degree of functional compatibility between the grain clusters. A grain of typological cluster could be sharp if it is abutted next to unlike typologies, and has potential to hasten furthering of neighbourhood blight.[5, 6]

A detailed analysis of Osborn's current typologies would form the basis of Osborn design proposal going further.

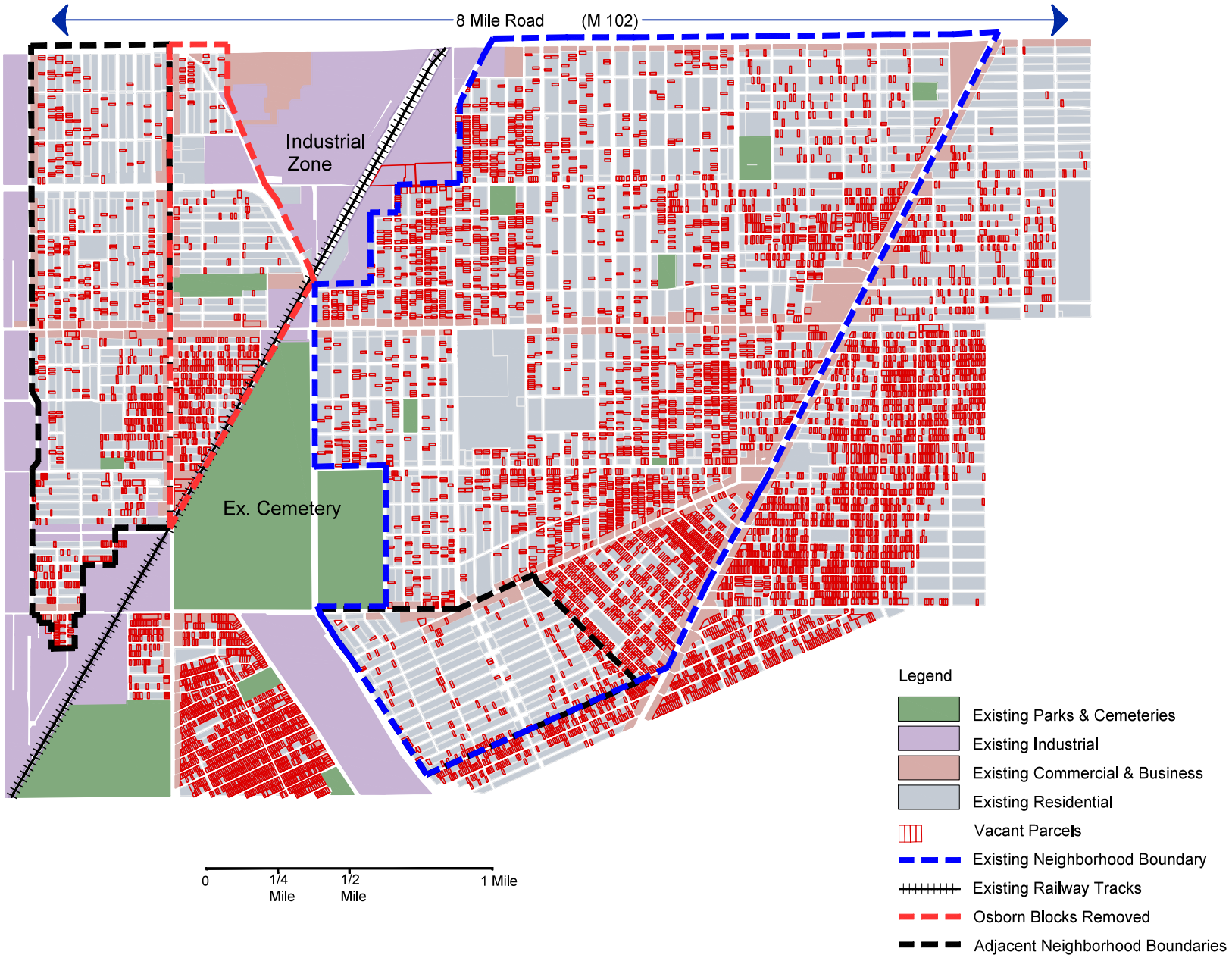


Figure 5.17 Osborn Proposed Boundary

To create a functional variation within density gradients, multiple functional typologies are required. Within low density gradient at least more than one single-use to induce minimum level activity. This could potentially create presence of people at different parts at different times. Lynch calls this, the grain of an urban fabric. A fine grain implies a well-mixed urban texture, with various typologies, building types, user groups and land features. A finer grain is desired to enrich the quality of city life. Detroit is an example of coarse grained city. Functionally homogenous and spatially monotonous. Large industrial areas developed along railway lines, form an impenetrable border, with a wide band of single-family housing surrounding it. The grain of residential areas, by class, is fluid, and easily altered in America due to people's desire to live close to their own kind. The mobility is usually backed by intent to protect property investment. What used to be ethnic enclaves, are now slowly becoming class enclaves, creating a coarse, class and ethnic grain usually is determined by market condition of the area and the prevailing economy.[7]

Figure 5.18 presents current building typologies located within Osborn. It is evident that the distribution of building typologies within Osborn followed the leap-frog spatial logic used in early 1920's. Main arterial roads are lined with commercial and retail buildings and a one-mile square Jefferson grid is filled with single family detached dwellings. Large parks and sprinkling of civic and institutional buildings are located somewhat central to the residental grids. the homogenous grain of building typologies is not configured to a walkable urban texture. To be walkable each residential block must be overlaid with a grid size of a quarter-mile square. To render the quarter-mile grid more usable a variety of density gradients will then be created using higher density nodes. Based on the density goals set for Detroit's 50 square mile neighborhood footprint, each square mile area needs to be brought up to 11,619 persons.

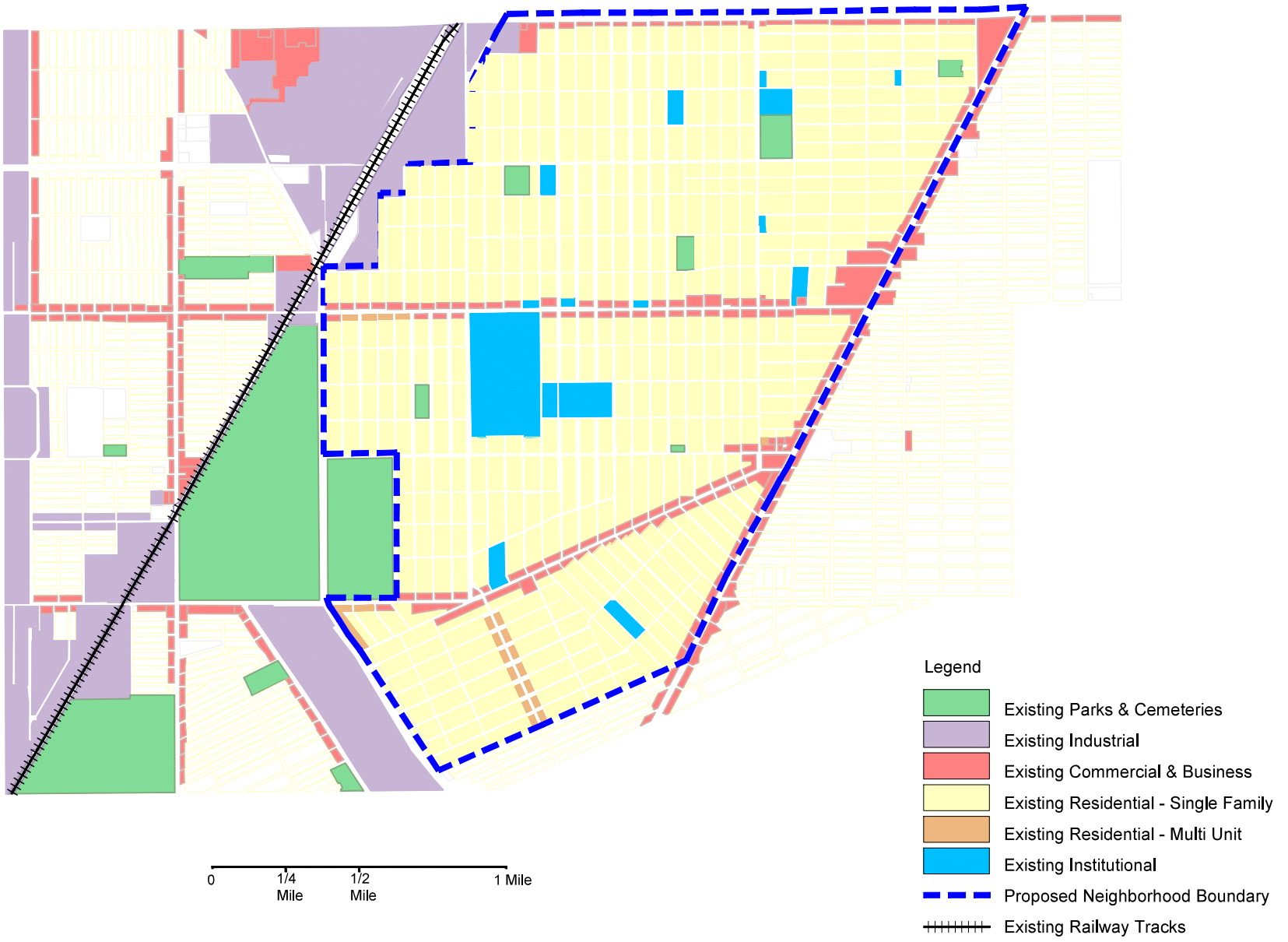


Figure 5.18 Analyse Osborn Zoning and Grain

The next major step would be to determine the location of vitality nodes. To understand the configuration of density gradients, the placement of the nucleus or the main, high density activity node is critical. If the activity node is centralized, as suggested by Perry, then the internal dynamics of the unit is equidistant to quarter square-mile boundary, but all the low density, and also the low activity zones are now positioned along the boundary. That is not the best representation of the neighborhoods identity intended at the boundary, and that brings us back to the current spatial dilemma. If Alexander's approach to creating eccentric centered grid is employed as a building block, it would lead to a more heterogeneous urban fabric with a mix of variations along the neighborhood boundaries.[8]

The activity nodes, high and low density gradients all have a relationship to street grids and would create a mixed-use, mix typology and a multi-sensory street experience.

Five Strategies for Neighbourhood Vitality:

1. The need for mix-use: The absence of attractors, or agents promoting well-being, whether wealth creation, sustenance generation or mere psychological, could push us in a state urban stagnation.
2. The need for small and blurred grain:
3. The need for diversity in age and conditions of buildings:
4. The need for density: The absence of voluntary and involuntary social controls amplifies feedbacks to illicit and immoral.
5. Adaptive governance through transdisciplinary think tank "government-resident" partnership, implementation tool (surveys and resident feedbacks for design), flexible approach through incremental phasing.

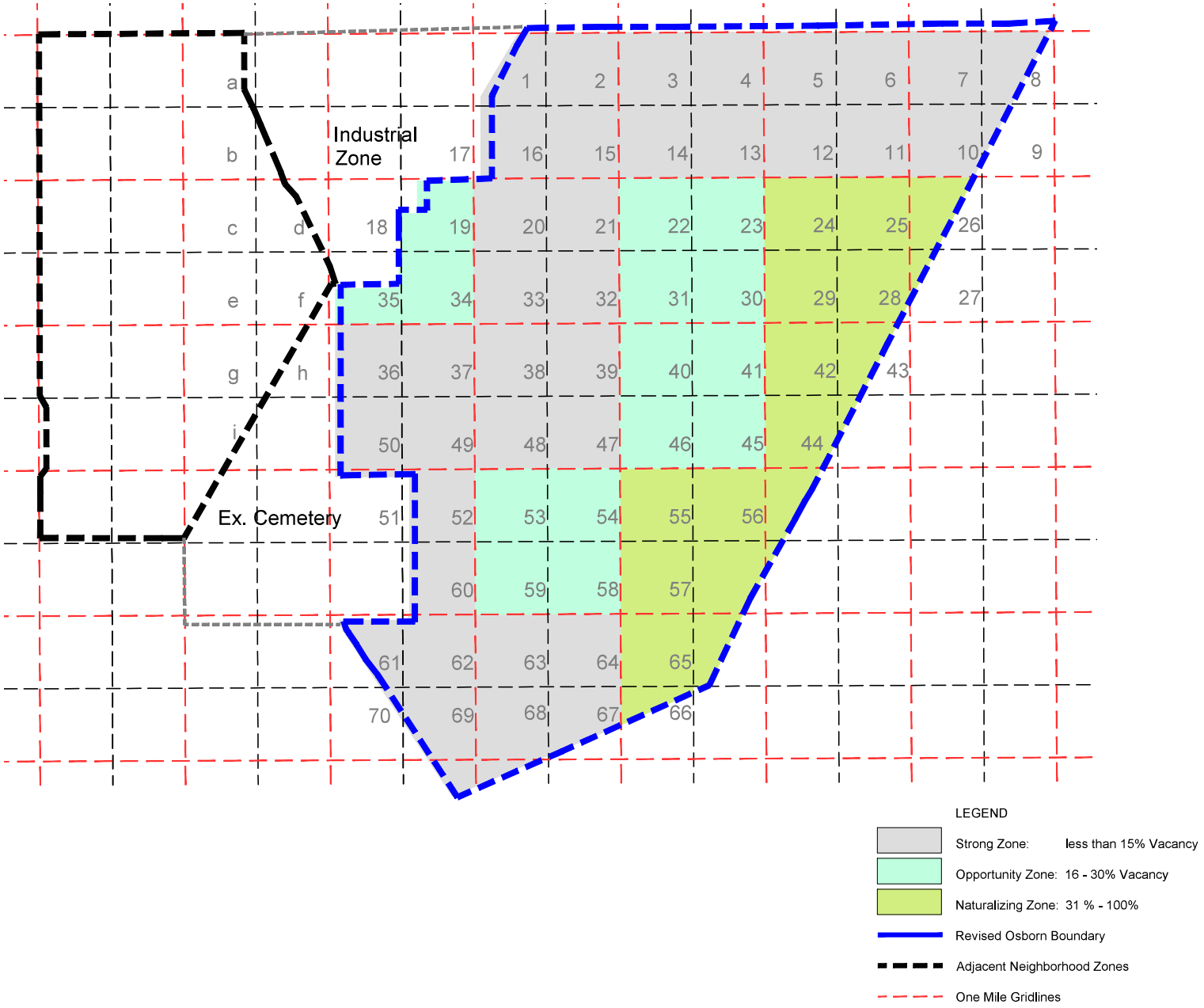


Figure 5.19 Quarter-Mile Sectors for Analysis

In a spatial sense, a fine grained areas could be made up of smaller components and typologies, and closely fitted for a mix of uses as shown in Figure 5.20. This would create a fine yet a high grain density. The grain in an urban texture may be fine or coarse based on its size and scale. Another quality is its sharpness or blur. Sharpness or blur represents the degree of functional compatibility between the grain clusters. A grain of typological cluster could be sharp if it is abutted next to unlike typologies, and has potential to hasten furthering of neighbourhood blight.[9]

To create a functional variation within density gradients, multiple functional typologies are required. For areas within low density gradients at least more than a single-use is proposed to induce minimum level street activity. This would create presence of people at different parts at different times. Lynch calls this, the grain of an urban fabric. A fine grain implies a well-mixed urban texture created using various typologies, building types, user groups and land features. A fine grain is desired to enrich the quality of city life. Detroit is an example of coarse grained city. Functionally homogenous and spatially monotonous. Large industrial areas developed along railway lines, form an impenetrable border, with a wide band of single-family housing surrounding it. The grain of residential areas, by class, is fluid, and easily altered in America due to people's desire to live close to their own kind. The mobility is usually backed by intent to protect property investment. What used to be ethnic enclaves, are now slowly shifting to becoming class enclaves, creating a coarse, class and ethnic grain usually determined by market condition of the area and the prevailing economy.[10]

Once neighbourhood context and intended transformation is familiarized a few residential structures would have to be constructed to build local interest. To incentivize a few policies could be used, for example.

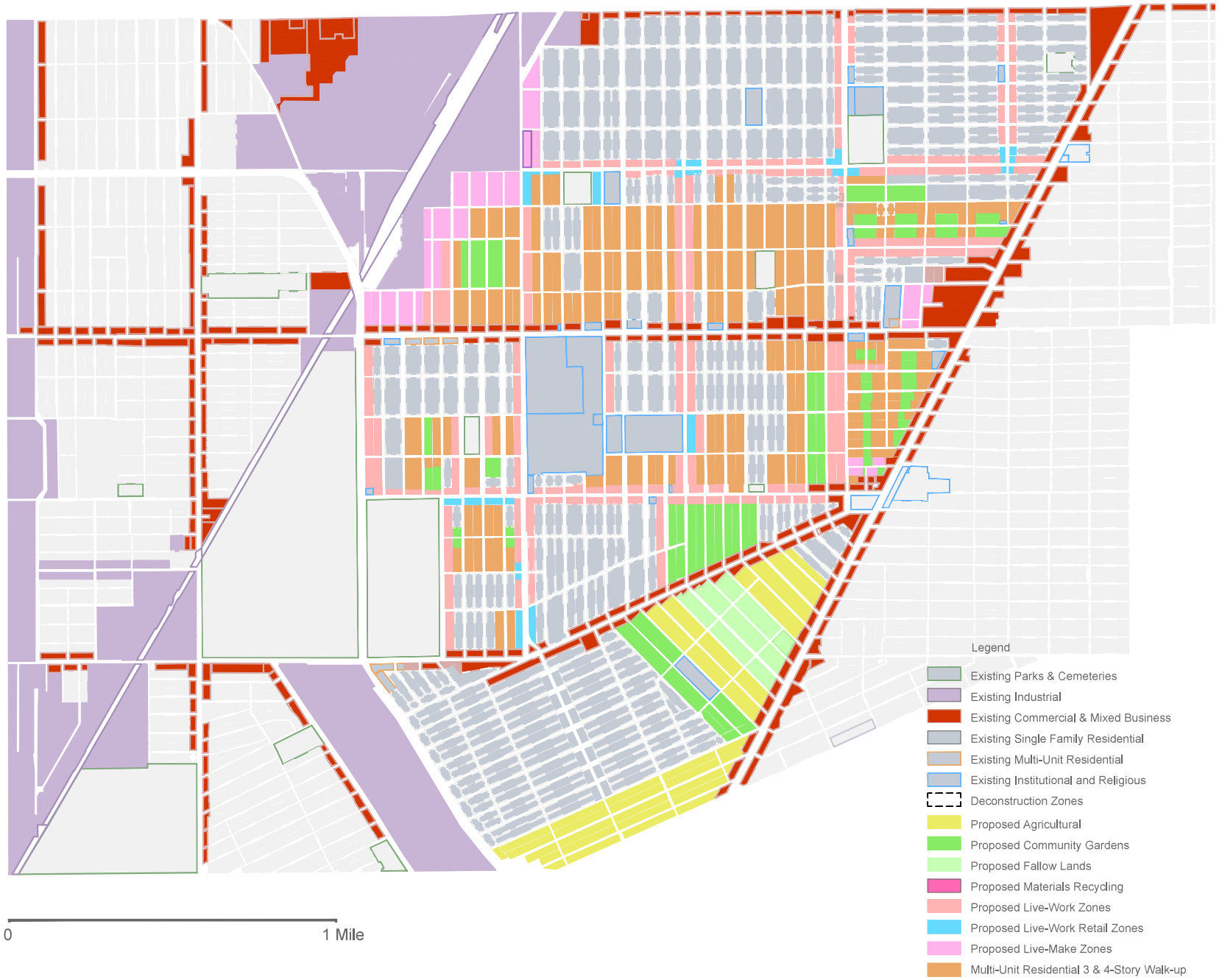
1. Home care and maintenance training to be provided to home owners to prevent further deterioration and disrepair of structures.[11]
2. Inhibit brain-drain by creating a new economy of education. Studies show that trade and creative industries attract highly educated. The need for affordable housing could benefit from trade education economies.[12]
3. Use landscape urbanism in a generative manner within built environments, community gardens and rainwater retention gardens, district heating and subsidised power through renewable sources.
4. Long term lease options to be provided to home owners with multiple lots, so they can swap into a house of equal value, their surplus land area leased within generative landscape zones. They can benefit from the profits-shares from the generative land.
5. Offer group-move to long-term neighbors so their social structure remains intact within new neighbourhoods.
6. Rent to own, and first time home buyer loans payable alternatively.

Incremental Densification Phases - 2019 - 2044

Figure 5.21 through 5.26 show the process of incremental densification within Osborn Detroit. Each phase lasts five years, it is a mere recommendation based on an assumption that most neighborhood tasks would require certain time to collect and implement user feedbacks within design proposals and later to coordinate the funding, material sourcing, resource analysis and finally the construction phase. Although due to experience gained by all actors the timelines would be expected to improve, however using systems thinking, as the system benefits are realized by more and more residents, the demand on these processes would also increase.

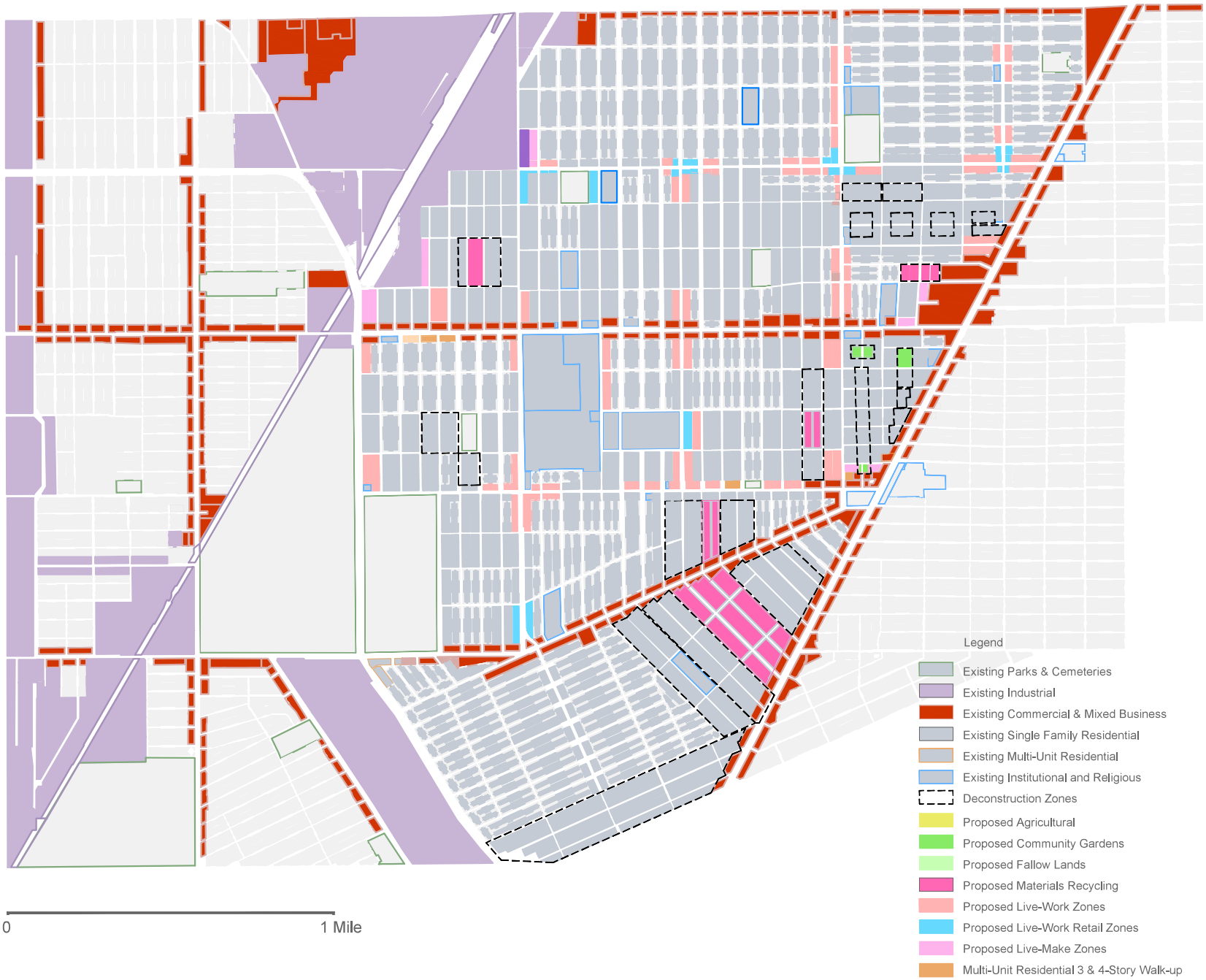
The months leading up to 2019 are suggested to be utilized as mobilization stage for the actors to group and form various scales and levels of hierarchies based on variety of tasks within each urban holon, street, neighborhood and municipal.

Proposed zoning as seen in Figure 5.20 suggests existing strong blocks to remain zoned for single-family residential and form the lowest density gradient. Live-work zoning for residential structures along main residential streets. Propose Live-work and Live-Retail zones for structures at intersections of main-residential streets. Three-storey structures proposed for increasing density within each quarter-mile grid. Introduce row houses or town house typology, not previously contained in Detroit, facing proposed community garden lots so as to increase street surveillance and activity.



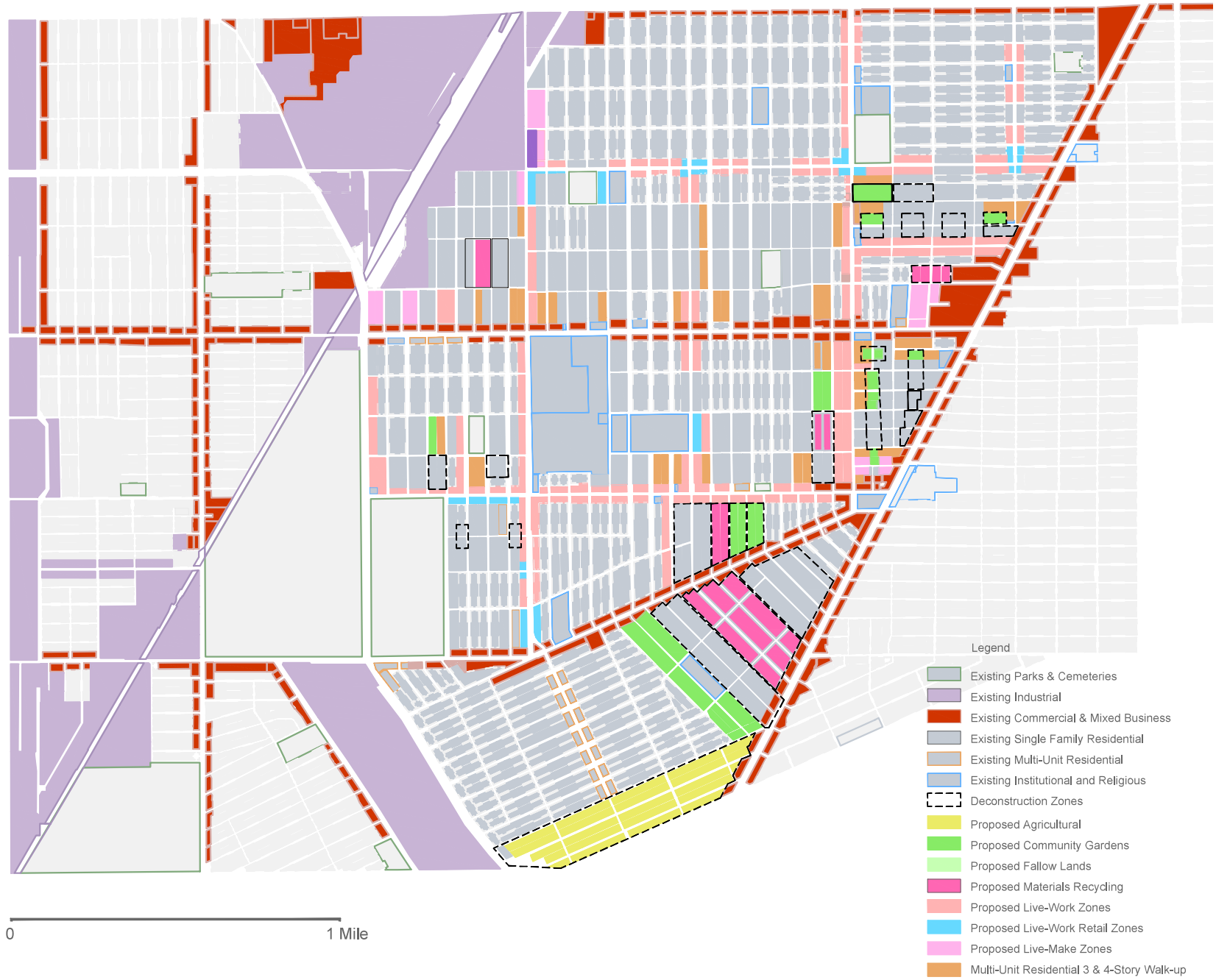
Create nodes of vitality at quarter mile scale using mixed-age, mixed use structures. Structures along neighborhood boundaries to be zoned to harmonize use compatibility between two incompatible uses.

Figure 5.20 Osborn Proposed Zoning after Final Phase



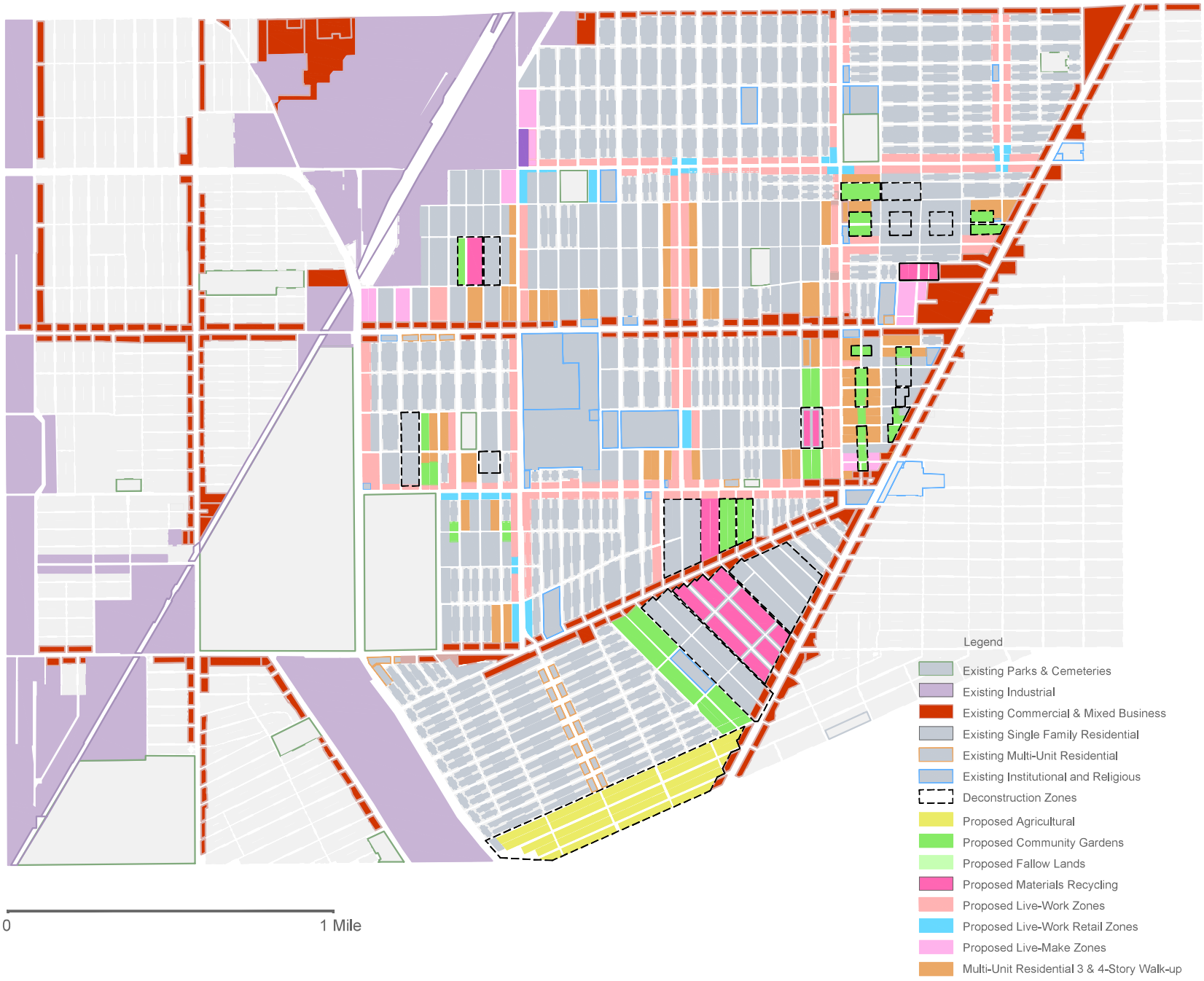
Identify initial demolition zones and set-up recycling depots to gain material resources. Revise zoning for parcels located at quarter-mile intersections and modify their structures to suit proposed zoning and use.

Figure 5.21 Phase-1 2019 -2023 Activate nodes located at quarter-mile grid. Drawn by Author



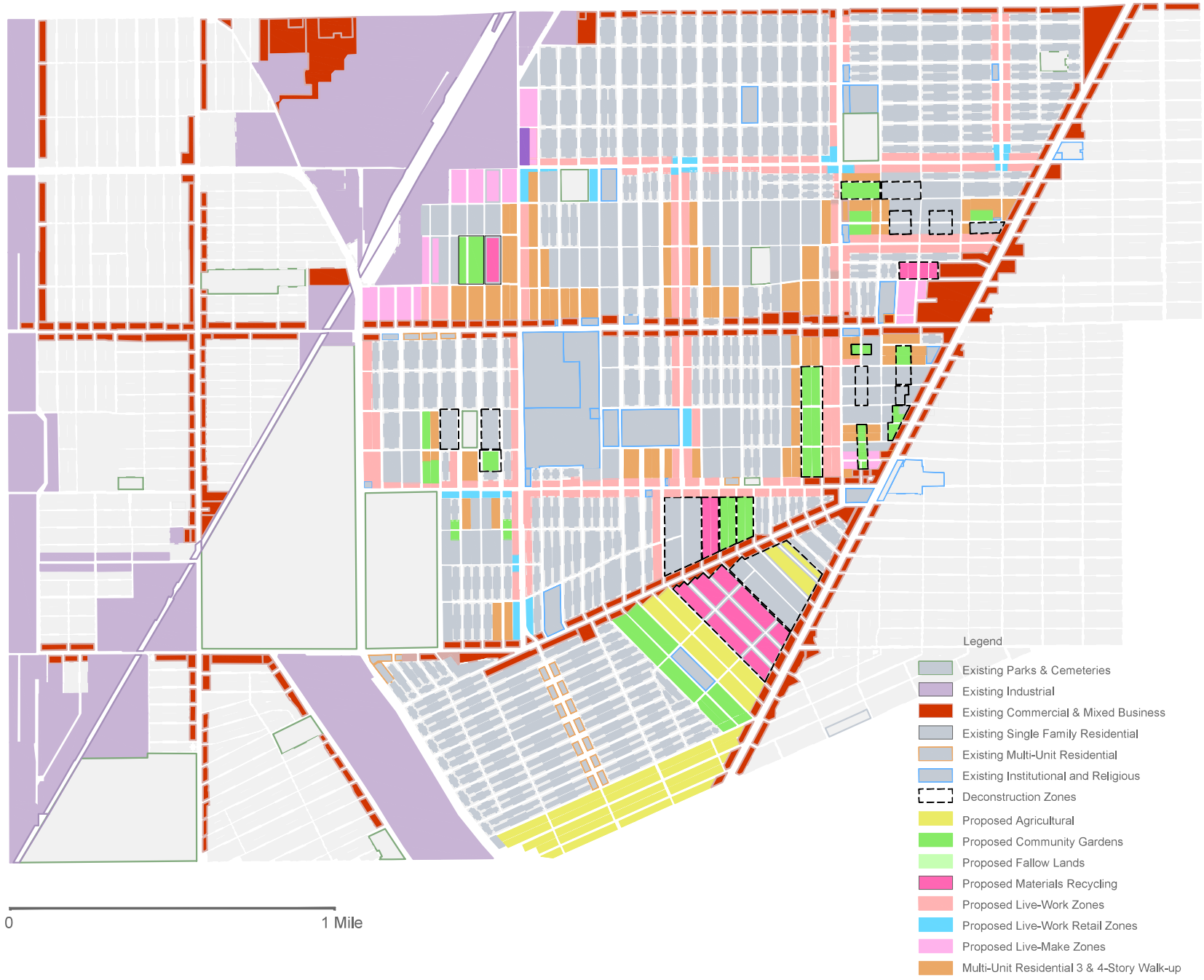
Assess the impact of node activation in phase-1. Continue to revise zoning for parcels located along quarter-mile streets, close to intersections and modify their structures to suit proposed zoning and use.

Figure 5.22 Phase-2 2024 -2028 : Activate streets along quarter-mile nodes. Drawn by Author



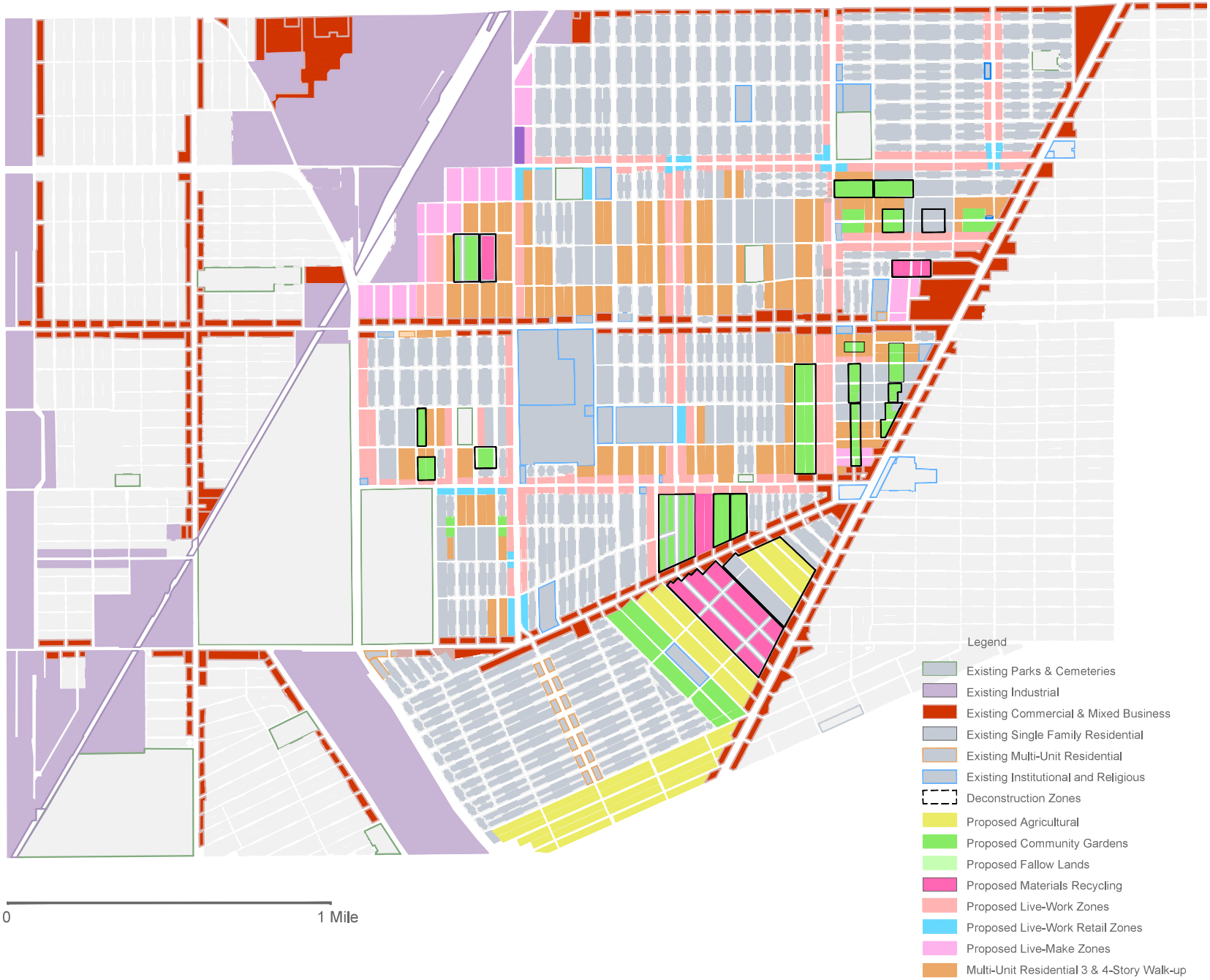
Assess the impact of street activation in phase-2. Continue to revise zoning for parcels located along adjacent blocks for higher density. Modify structures and street typologies to suit proposed density.

Figure 5.23 Phase-3 2029 -2033: Modify street and parcel typologies to initiate densification.
Drawn by Author



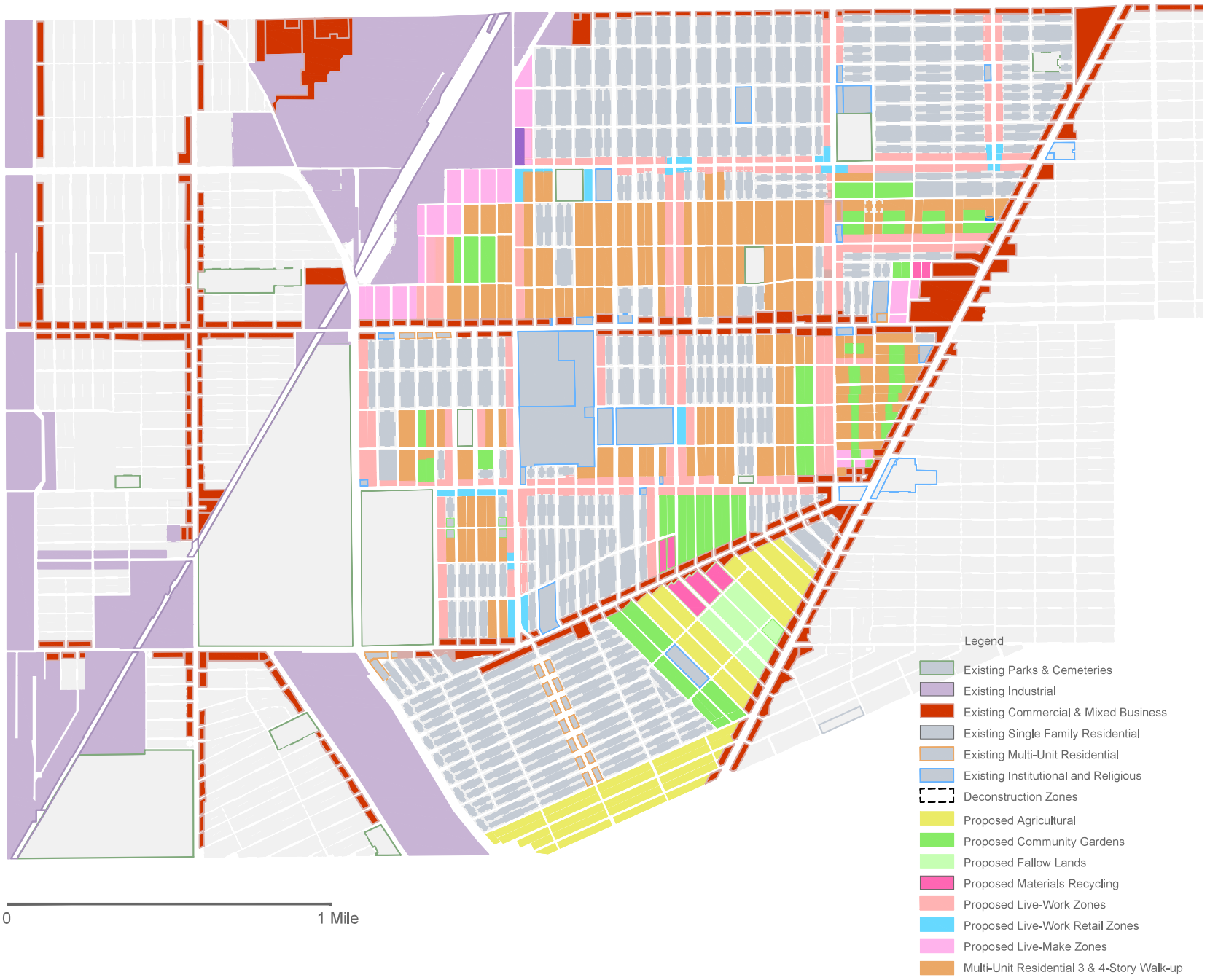
Add variety of residential typologies within densified blocks to accommodate a diverse range of user needs. Activate generative landscapes such a community gardens and agricultural blocks.

Figure 5.24 Phase-4 2034 -2038: Activate community gardens and agricultural lands. Drawn by Author



Continue to modify zoning and typologies to suit density goals within residential blocks. De-activate recycling centers where demolitions are finished and convert to community gardens and agricultural lands.

Figure 5.25 Phase-5 2039 -2043: De-activate recycling centers and switch to generative landscapes.
Drawn by Author



Assess the impact of densification within various density gradients. Continue to govern adaptively employing user feedbacks.

Figure 5.26 Phase-5 Final Completion 2044: Conclude densification process, implement adaptive governance.
Drawn by Author

Density Calculations

A neighborhood key plan can assist in determination of population numbers within each quarter-mile sector. Figure 5.27 shows the sixty sectors that belong to original Osborn neighborhood. Sectors located within grids ‘a’ through ‘i’, are a continuous part of adjacent neighborhood and could be more cohesive spatially and physically if they become part of the adjacent neighborhood. These sectors are therefore removed from Osborn boundary and added to adjacent neighborhood, shown in red colour. Sectors sixty-one through seventy, shown in yellow colour, belong to an adjacent neighborhood containing stronger residential blocks that are surrounded by high vacancy. In order to sustain these residential blocks it is logical to add them to Osborn. The process of incremental densification within the new revised boundary, shown in blue coloured line, requires determination of population densities of various blocks to reach a density goal of 11,619 persons per sq.mile set previously, as overall city guide.

The inventory of occupied and vacant parcels is shown in Table 1, 2 and 3 calculations. These numbers form the basis of calculations in Table 4, where the total number of occupied and vacant parcels are determind for the new Osborn boundary.

Next, the neighborhood density goal is aligned with the density goal proposed for the overall city of Detroit as seen in Table-5. Osborn’s density will now be gradually built within each five-year incremental phase as see in Table 6 and 7. Density calculations will be required to establish and monitor density goals within each incremental phase.

Once classified, blocks located close to main arterial roads, could be supported through mass public transit and therefore vacant parcels located within these blocks can be built up to a higher density. The parcels located three to four blocks away from higher density blocks are then proposed to be mixed density based on existing vacancy levels. The strong zones will simply use residential infill mechanism and replace the structures at existing vacant parcel or at-most, built two stacked units, to maintain existing density or slightly increase it.

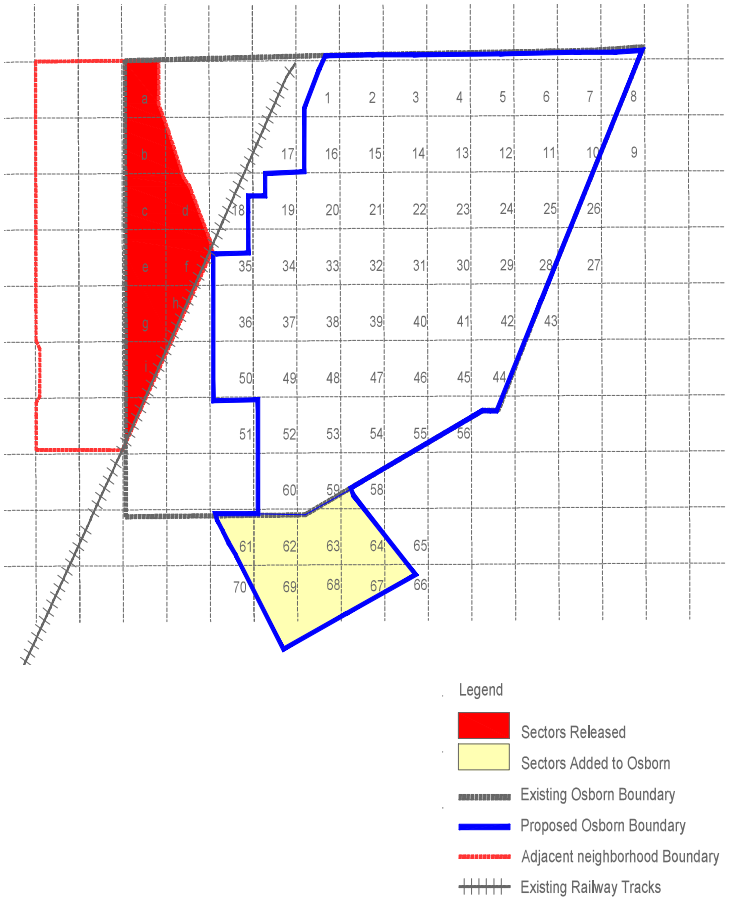


Figure 5.27 Osborn 1/4 mile sq. Grid Sectors -
To perform a zone by zone inventory of residential parcels.

Existing Osborn Population		
Total Lots	10118	
Total Vacancy	1979	a
Existing Occupied U	8139	
Existing Population	24,137	
Sectors Removed		
Total Lots	1223	
Total Vacancy	294	
Sectors Added		
Total Lots	1463	
Total Vacancy	184	b
New Osborn		
Tot. Occupied Lots	10358	D
Total Vacant Lots	2163	(a+b) = C

Left: Table 4: Determine Number of Vacant and Occupied Parcels in New Osborn Boundary

The Osborn Area to be moved into another district

1/4 Square Mile #	Total Lots	Total Vacancy
a	142	26
b	58	2
c	187	16
d	113	8
e	144	8
f	84	3
g	273	125
h	57	43
i	165	63
Total	1223	294

Table 2 (Above): Parcels within sectors removed from Osborn , forming basis of calculations in Table-4

New Osborn Boundry		
Total Occupied Lots	10,358.00	D
Total Vacant Lots to be Filled	2,163.00	C
Average Household Size	2.97	
Osborn Population in Current Density	37,132.25	(D + C) * 2.97
Osborn Population w/ Proposed Density	40,594.87	E
Increased Population	3,462.62	
Average Household Size	2.97	
Additional Units Required	1,167.60	F
Total Occupied Units	**13,688.60**	(D + C + F) = G

Top: Table 5: Determine Required Number of New Units Within New Osborn Boundary

High Density Existing Lots surrounding Osborn

1/4 Square Mile #	Total Lots	Total Vacancy
61	1463	184
62		
63		
64		
65		
66		
67		
68		
69		
70		
Total	1463	184

Table 3 (Above): Parcels within new sectors added to Osborn, forming basis of calculations in Table-4

City of Detroit		
Population (U.S. Census 2012-2016)	683,443.00	
Percentage of Downtown	15	
Percentage of Metropolis Area	85	
Population of Downtown	102,516.45	
Population of Metropolis Area	580,926.55	
Proposed		
Area of Detroit's Neighborhoods (sq.mi.)	50	
Proposed Density per Sq.Mi	11,618.53	
Area of New Osborn	3.493975924	
Proposed Population Osborn: Population Proposed for Osborn with Revised Boundries	40,594.87	E

Top: Table 6: Population Density of Osborn aligned with Proposed Population Density of Detroit

1/4 Square Mile #	Total Lots	Total Vacancy
1	107	12
2	182	9
3	182	10
4	211	24
5	204	21
6	201	22
7	182	12
8	0	0
9	0	0
10	167	8
11	247	32
12	121	11
13	244	15
14	199	27
15	233	62
16	212	41
17	0	0
18	31	4
19	253	80
20	200	32
21	207	14
22	259	26
23	255	67
24	269	82
25	270	102
26	50	29
27	0	0
28	61	29
29	210	39
30	182	24
31	216	19
32	196	19
33	214	24
34	271	75
35	130	28
36	206	14
37	196	29
38	0	0
39	230	26
40	240	52
41	240	89
42	243	77
43	0	0
44	130	38
45	255	99
46	252	82
47	112	21
48	54	13
49	193	24
50	228	44
51	0	0
52	238	23
53	268	41
54	181	53
55	293	141
56	86	38
57	58	2
58	110	35
59	93	6
60	246	33
Total	10118	1979

Table 1 (Right): Parcels within existing to remain Osborn boundary, forming basis of calculations in Table-4

1/4 Sq. Mile #			Low Density - 1-Story Houses		Live Work - 1-Story Houses		Medium Density - 3-Story Ho		High Density - 4-Story Ho		re-Make(industrial/hydroponi		Live-Work Retail - 1-Story H		Community Gard	Civic Services
Sector	Total Lots	Density	Number of Lots	1-Story Houses	Number of Lots	# Houses	Number of Lots	# Houses	Number of Lot	# Houses	Number of Lots	# Houses	Number of Lots	# Houses	Number of Lots	Number of Lots
1	107	107	89	89							18	18				
2	182	182	182	182												
3	182	182	182	182												
4	211	211	211	211												
5	204	204	155	155	49	49										
6	201	201	201	201												
7	182	182	148	148	34	34										
8	0	0	0	0												
9	0	0	0	0												
10	167	167	100	100	57	57							10	10		
11	247	247	217	217	30	30										
12	121	121	75	75	40	40							6	6		
13	244	244	163	163	23	23					57	57	1	1		
14	199	199	181	181	11	11							7	7		
15	233	233	208	208	25	25										
16	212	212	91	91	18	18					64	64	39	39		
17	0	0	0	0												
18	31	31	0	0							31	31				
19	253	330	60	60					73	200	95	95			25	
20	200	387	34	34	22	22	128	315					16	16		
21	207	354	53	53	10	10	128	275					16	16		
22	259	406	49	49	76	76	128	275			6	6				
23	255	402	85	85	26	26	128	275					16	16		
24	269	182	17	17	19	19			96	265			9	9	128	
25	270	311	82	82	28	28			96	265					64	
26	50	50	32	32	14	14							4	4		
27	0	0	0	0												
28	61	37	21	21	28	28									12	
29	210	186	96	96	64	64							38	38	12	
30	182	329	54	54			128	275								
31	216	363	38	38	50	50	128	275								
32	196	295	44	44			128	275								24
33	214	361	58	58	28	28	128	275								
34	271	220	-9	-9	37	37			136	265	17	17			90	
35	130	160	0	0					18	72	100	100				12
36	206	206	182	182	24	24										
37	196	196	180	196												
38	0	0	0	0												
39	230	204	180	180	24	24										
40	240	240	182	182	58	58										
41	240	325	64	64	28	28			116	265					32	
42	243	252	45	45	6	6			128	265					64	
43	0	0	0	0												
44	130	199	0	0	26	26			45	180	26	26			33	
45	255	297	61	61	44	44			92	250					58	
46	252	262	-10	-10	22	22	128	185	29	116			16	16	67	
47	112	216	0	0	16	16	96	200								
48	54	54	35	35	19	19										
49	193	292	8	8	68	68			83	250					34	
50	228	335	71	71	69	69			58	225					30	
51	0	0	0	0												
52	238	353	39	39	27	27			128	275			28	28	16	
53	268	248	180	180	65	65							3	3		
54	181	181	140	140	41	41										
55	293	-307	-31	-31	24	24									300	
56	86	7	47	47	24	24									64	
57	58	-74	-8	-8											66	
58	110	110	103	103	7	7										
59	93	93	33	33	26	26							34	34		
60	246	296	194	194	27	27	25	75								
61		146.3														
62		146.3														
63		146.3														
64		146.3														
65	1463	146.3	1463	1463												
66		146.3														
67		146.3														
68		146.3														
69		146.3														
70		146.3														
Total	11,581.00		6075	**6091**	1334	**1334**	1273	**2700**	1098	**2893**	414	**414**	243	**243**	**1095**	36
				a		**b**		**c**		**d**		**e**		**f**	**g**	

Total Units Provided in 2044 = **13675** **(a+b+c+d+e+f) - g**

Table-7 Number of Units Required and Building Typologies within Sectors to Provide Them.
Drawn by Author

Track density built-up during phases using number of residential units provided within each parcel and block.

2018		2044		2019			2024				2039				2034				2039				2044			
Lots Available	Vacant Lots	Units Reqd	Add House	Percent	Units	T. Lots	Percent	Units	T. Lots	D-Total	Percent	Lots	T. Lots	D-Total	Percent	Lots	T. Lots	D-Total	Percent	Lots	T. Lots	D-Total	Percent	Lots	T. Lots	D-Total
107	12	107	12		107	95	20%	2	97	97	20%	2	100	100	20%	2	102	102	20%	2	105	105	20%	2	107	107
182	9	182	9		182	173	20%	2	175	175	20%	2	177	177	20%	2	178	178	20%	2	180	180	20%	2	182	182
182	10	182	10		182	172	20%	2	174	174	20%	2	176	176	20%	2	178	178	20%	2	180	180	20%	2	182	182
211	24	211	24		211	187	20%	5	192	192	20%	5	197	197	20%	5	201	201	20%	5	206	206	20%	5	211	211
204	21	204	21		204	183	20%	4	187	187	20%	4	191	191	20%	4	196	196	20%	4	200	200	20%	4	204	204
201	22	201	22		201	179	20%	4	183	183	20%	4	188	188	20%	4	192	192	20%	4	197	197	20%	4	201	201
182	12	182	12		182	170	20%	2	172	172	20%	2	175	175	20%	2	177	177	20%	2	180	180	20%	2	182	182
0	0	0	0		0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0
0	0	0	0		0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0
167	8	167	8		167	159	20%	2	161	161	20%	2	162	162	20%	2	164	164	20%	2	165	165	20%	2	167	167
247	32	247	32		247	215	20%	6	221	221	20%	6	228	228	20%	6	234	234	20%	6	241	241	20%	6	247	247
121	11	121	11		121	110	20%	2	112	112	20%	2	114	114	20%	2	117	117	20%	2	119	119	20%	2	121	121
244	15	244	15		244	229	20%	3	232	232	20%	3	235	235	20%	3	238	238	20%	3	241	241	20%	3	244	244
199	27	199	27		197	172	20%	5	175	177	20%	5	181	183	20%	5	186	188	20%	5	192	194	20%	5	197	199
233	62	233	62		201	171	20%	12	151	183	20%	12	164	196	20%	12	176	208	20%	12	189	221	20%	12	201	233
212	41	212	41		212	171	20%	8	179	179	20%	8	187	187	20%	8	196	196	20%	8	204	204	20%	8	212	212
0	0	0	0		0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0
31	4	31	4		31	27	20%	1	28	28	20%	1	29	29	20%	1	29	29	20%	1	30	30	20%	1	31	31
228	80	432	259		253	173	20%	52	46	225	20%	52	98	277	20%	52	149	328	20%	52	201	380	20%	52	253	432
200	32	456	288		200	168	20%	58	-30	226	20%	58	27	283	20%	58	85	341	20%	58	142	398	20%	58	200	456
207	14	463	270		207	193	20%	54	-9	247	20%	54	45	301	20%	54	99	355	20%	54	153	409	20%	54	207	463
259	26	515	282		259	233	20%	56	33	289	20%	56	90	346	20%	56	146	402	20%	56	203	459	20%	56	259	515
255	67	511	323		255	188	20%	65	-3	253	20%	65	61	317	20%	65	126	382	20%	65	190	446	20%	65	255	511
141	82	301	114		269	187	20%	23	178	210	20%	23	201	233	20%	23	223	255	20%	23	246	278	20%	23	269	301
206	102	430	262		270	168	20%	52	60	220	20%	52	113	273	20%	52	165	325	20%	52	218	378	20%	52	270	430
50	29	50	29		50	21	20%	6	27	27	20%	6	33	33	20%	6	38	38	20%	6	44	44	20%	6	50	50
0	0	0	0		0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0
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198	39	198	27		210	171	20%	5	188	176	20%	5	194	182	20%	5	199	187	20%	5	205	193	20%	5	210	198
182	24	438	280		182	158	20%	56	-42	214	20%	56	14	270	20%	56	70	326	20%	56	126	382	20%	56	182	438
216	19	472	275		216	197	20%	55	-4	252	20%	55	51	307	20%	55	106	362	20%	55	161	417	20%	55	216	472
172	19	404	227		196	177	20%	45	14	222	20%	45	60	268	20%	45	105	313	20%	45	151	359	20%	45	196	404
214	24	470	280		214	190	20%	56	-10	246	20%	56	46	302	20%	56	102	358	20%	56	158	414	20%	56	214	470
181	75	517	321		271	196	20%	64	14	260	20%	64	78	324	20%	64	143	389	20%	64	207	453	20%	64	271	517
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208	89	524	373		240	151	20%	75	-58	226	20%	75	16	300	20%	75	91	375	20%	75	165	449	20%	75	240	524
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0	0	0	0		0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0	20%	0	0	0
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198	44	354	170		228	184	20%	34	92	218	20%	34	126	252	20%	34	160	286	20%	34	194	320	20%	34	228	354
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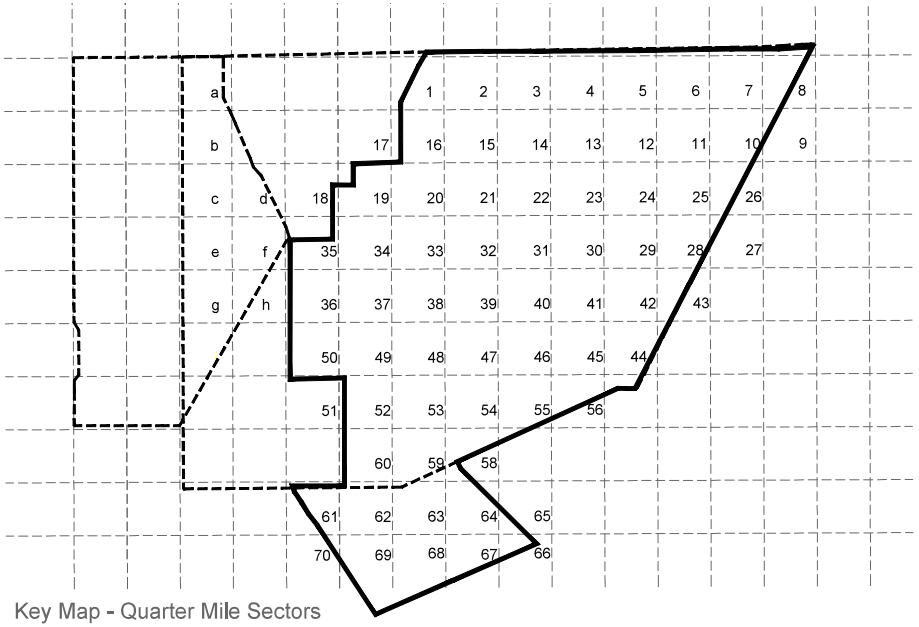
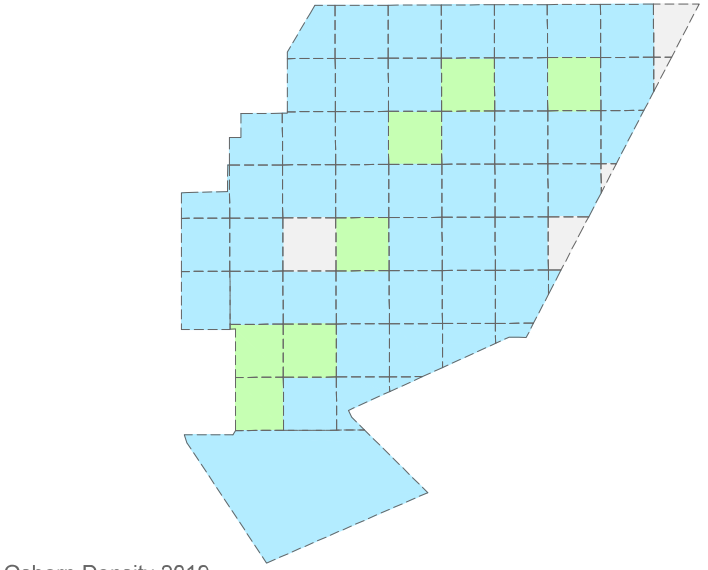
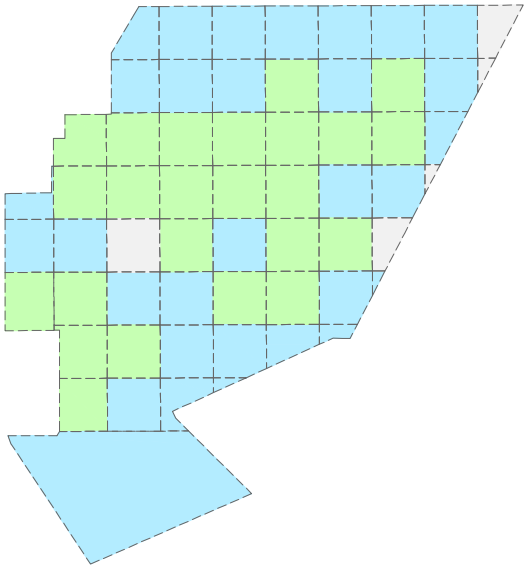
222	23	590	375		238	215	20%	75	-62	290	20%	75	13	365	20%	75	88	440	20%	75	163	515	20%	75	238	590
268	41	268	41		268	227	20%	8	235	235	20%	8	243	243	20%	8	252	252	20%	8	260	260	20%	8	268	268
181	53	181	53		181	128	20%	11	139	139	20%	11	149	149	20%	11	160	160	20%	11	170	170	20%	11	181	181
-7	141	-245	-397		293	152	20%	-79	611	73	20%	-79	531	-7	20%	-79	452	-86	20%	-79	372	-166	20%	-79	293	-245
22	38	56	8		86	48	20%	2	80	50	20%	2	81	51	20%	2	83	53	20%	2	84	54	20%	2	86	56
-8	0	-58	-116		58	58	20%	-23	151	35	20%	-23	128	12	20%	-23	104	-12	20%	-23	81	-35	20%	-23	58	-58
110	35	110	35		110	75	20%	7	82	82	20%	7	89	89	20%	7	96	96	20%	7	103	103	20%	7	110	110
93	6	93	6		93	87	20%	1	88	88	20%	1	89	89	20%	1	91	91	20%	1	92	92	20%	1	93	93
246	33	296	83		246	213	20%	17	180	230	20%	17	196	246	20%	17	213	263	20%	17	229	279	20%	17	246	296
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3
164.7	18.4	146.3	0		146.3	127.9	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146	20%	0	146	146.3

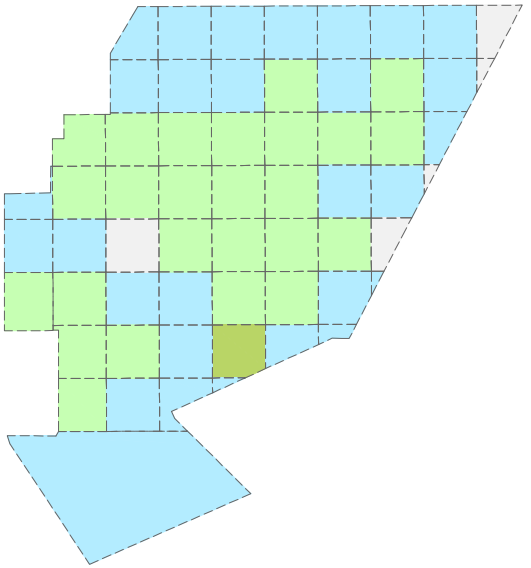
Table-8 Number of Units Added : Phase1 through Phase5 till Final Completion 2044:
Conclude densification process while implementing adaptive governance.
Drawn by Author



Key Map - Quarter Mile Sectors

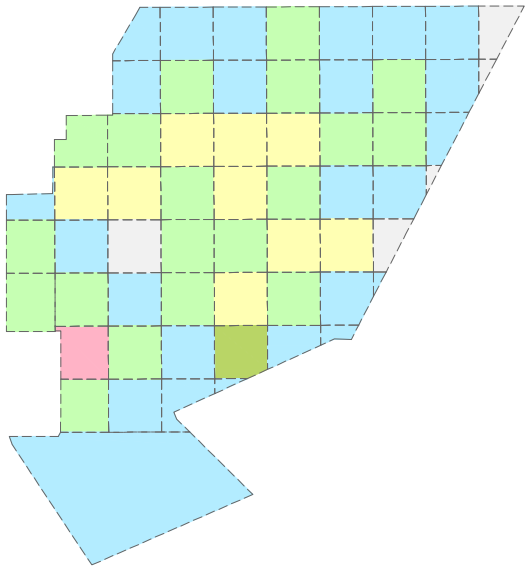

Osborn Density 2019


Osborn Density 2024

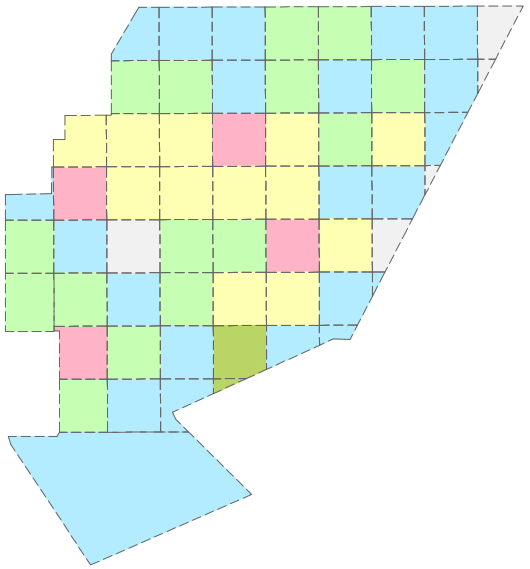

Osborn Density 2029

Visualize density built-up during phases using number of residential units provided within each parcel and block.

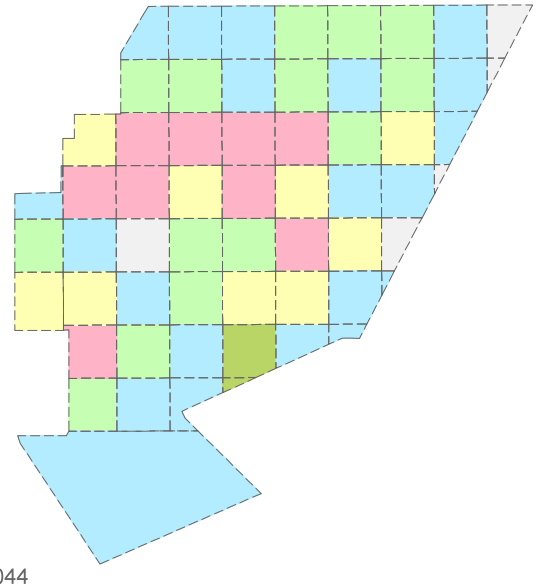
Figure 5.28 (above and opposite page) Density Visualization in Phase1 through Phase5 till Final Completion 2044.
Drawn by Author



Osborn Density 2034



Osborn Density 2039



Osborn Density 2044

Legend

1 - 493 Residents

494 - 865 Residents

866 - 1'113 Residents

1'114 + Higher Residents

No Population

Naturalizing

Three neighborhood nodes have been selected for a higher population density. These nodes have existing assets that could assist in a creating sustainable activity nodes. The sectors lying between the three nodes are proposed as medium density sectors. The stabilizing effects of these higher density nodes impacts not just Osborn but as points of continuation to adjacent neighbourhoods, can assist in stabilizing the surrounding neighborhood parcels as well.

Figure 5.29 (above) Existing Osborn model with vacant structures in red.
Drawn by Author

Figure 5.30 (above) Residential node 1 near Franklin Detroit Public Library, before densification.
Drawn by Author

Figure 5.31 (above) Residential node 2 near Franklin Detroit Public Library, before densification.
Drawn by Author

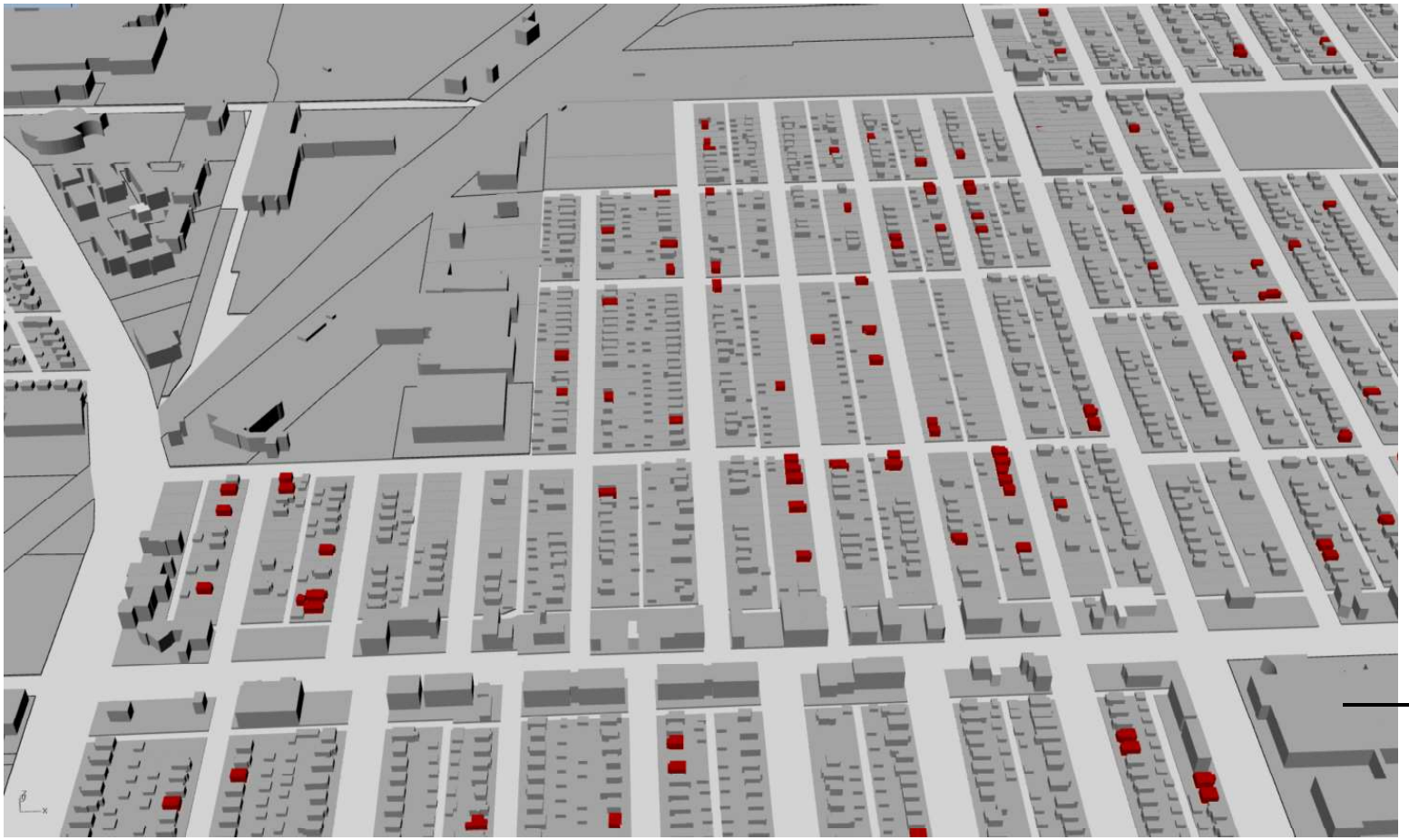


Figure 5.32 (above) Residential node 3 near Osborn High School, before densification.
Drawn by Author

The neighborhood nodes after higher population density will each have distinct characteristics. Each note caters to higher population density supported through generative landscapes with community gardens and agricultural lands. The community gardens have a variety of housing typologies surrounding it, attracting diversity of class, education household types and income groups. The street-fronts can be further activated with live-retail (magenta) and live-work (blue) residential zoning analyzed further in sections studies.

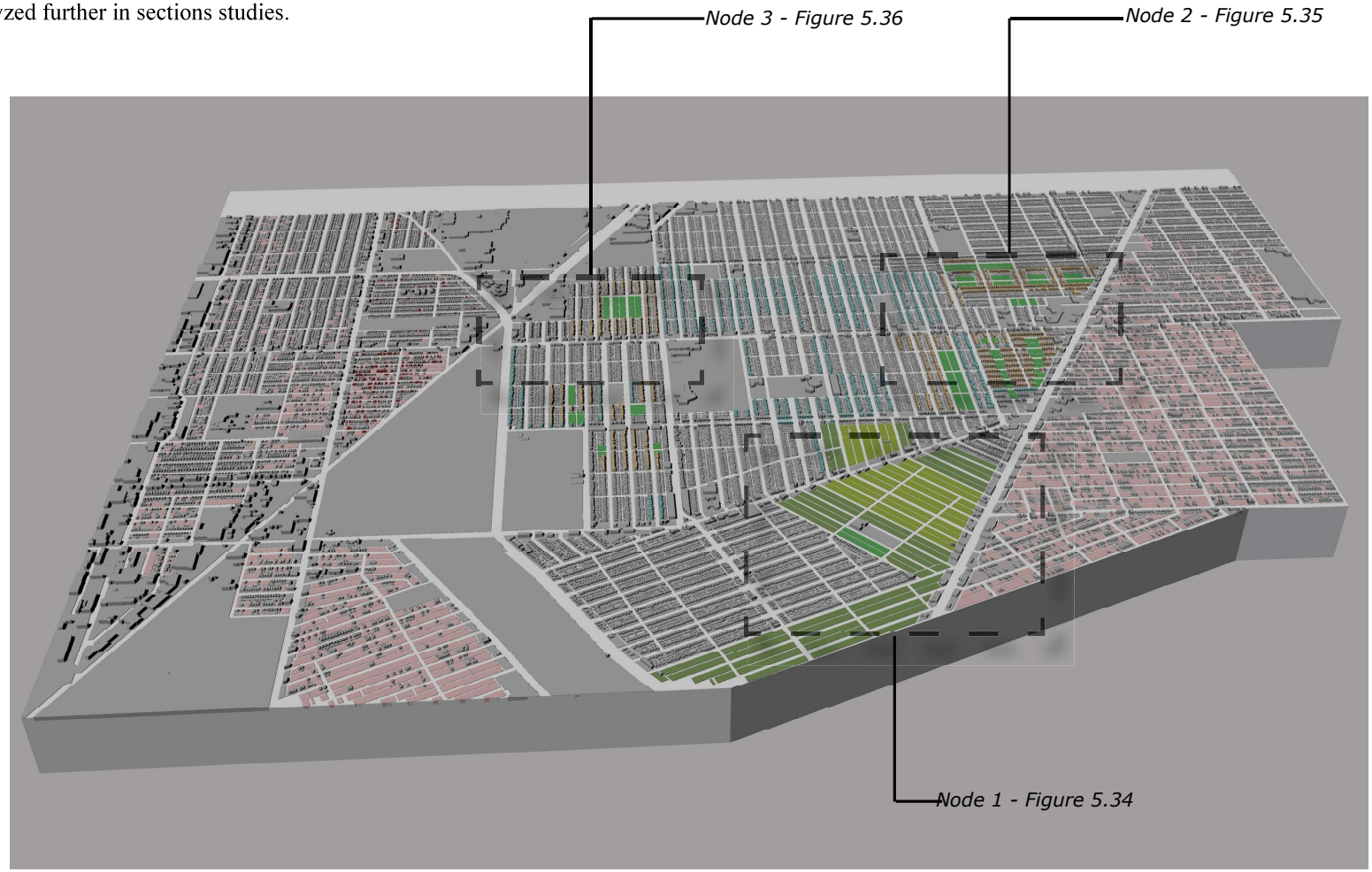


Figure 5.33 (above) Proposed Osborn model with Densification in 2044
Drawn by Author

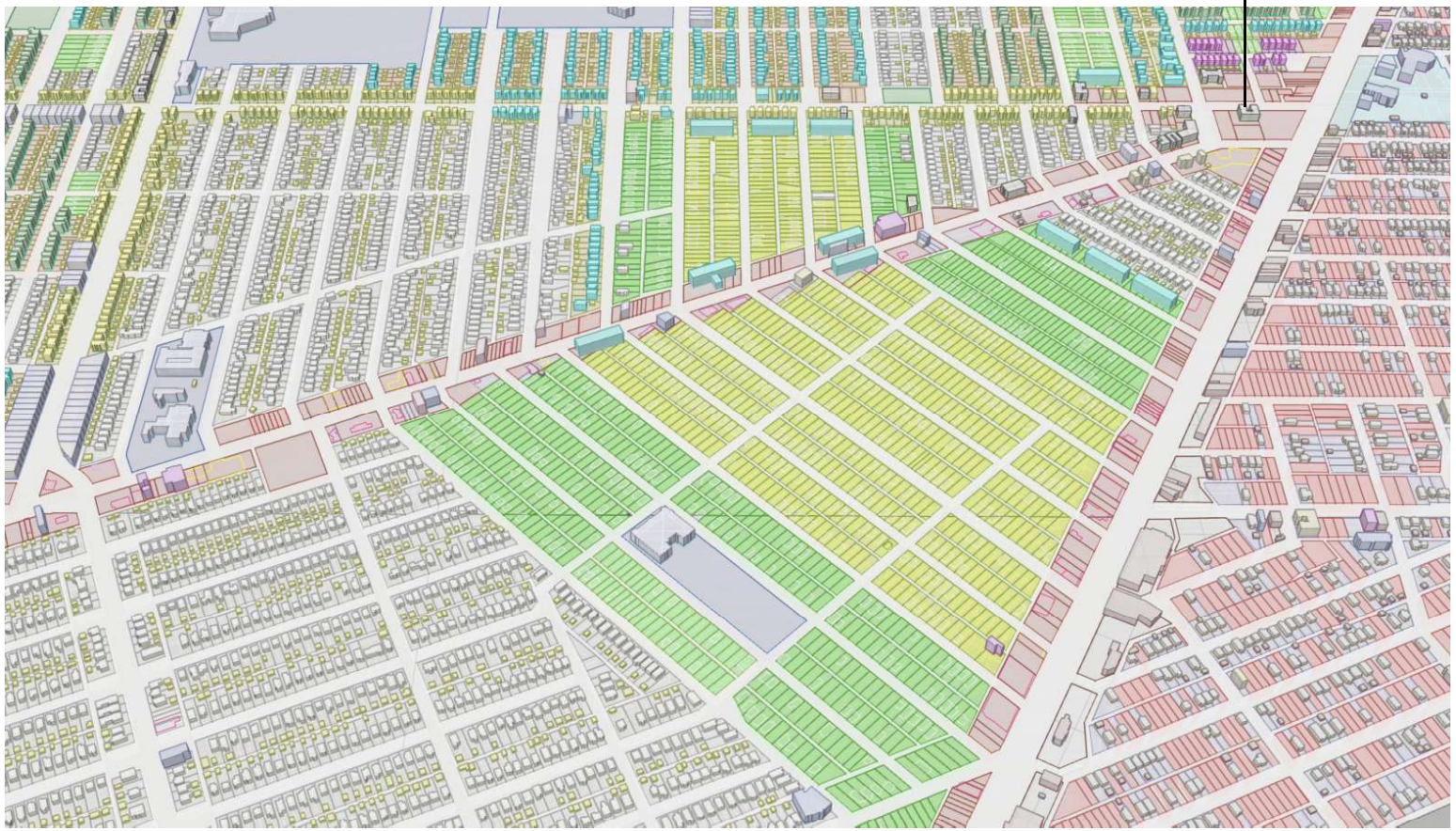


Figure 5.34 (above) Residential node 1 near Franklin Detroit Public Library, after densification.
Drawn by Author

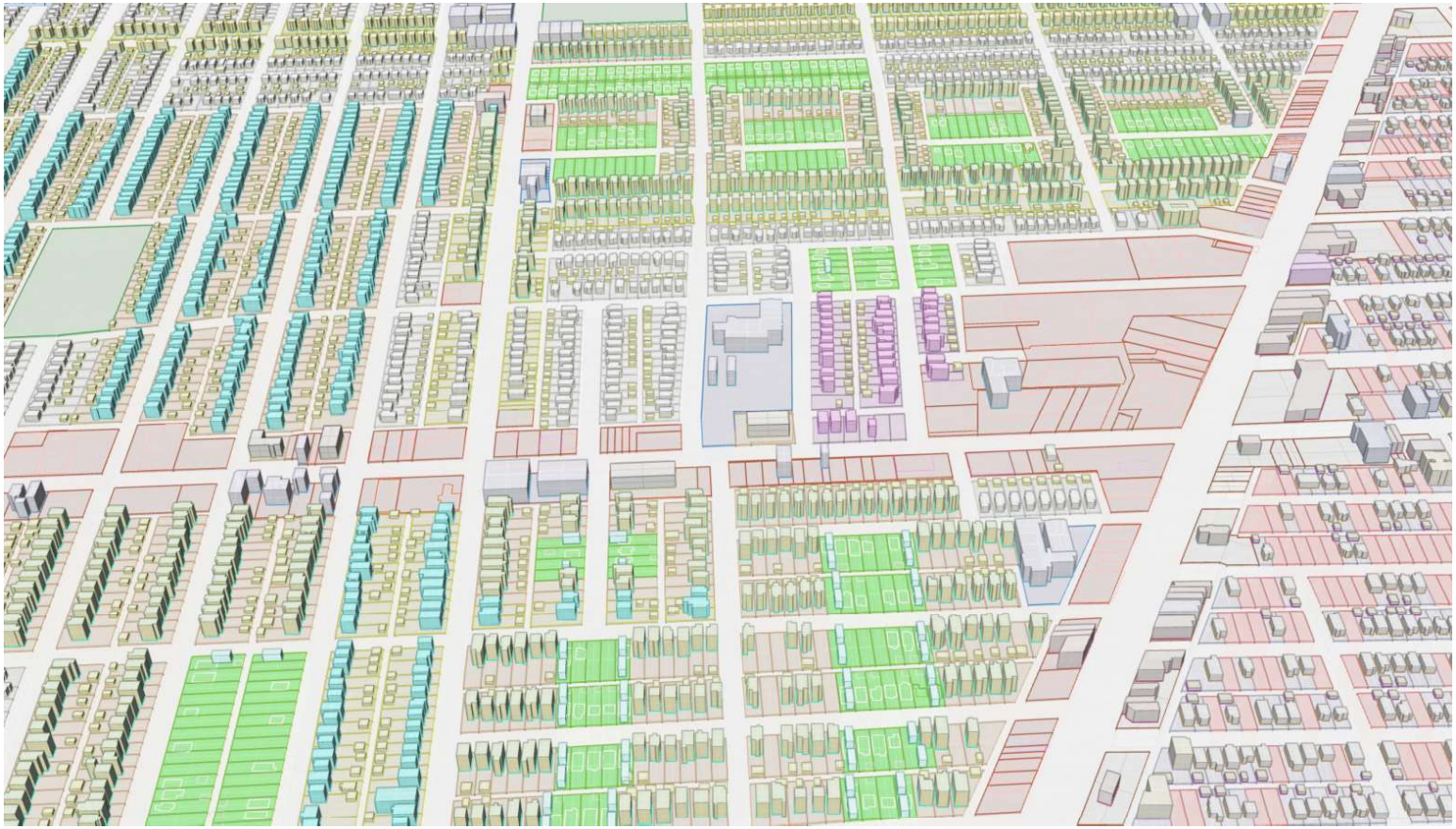


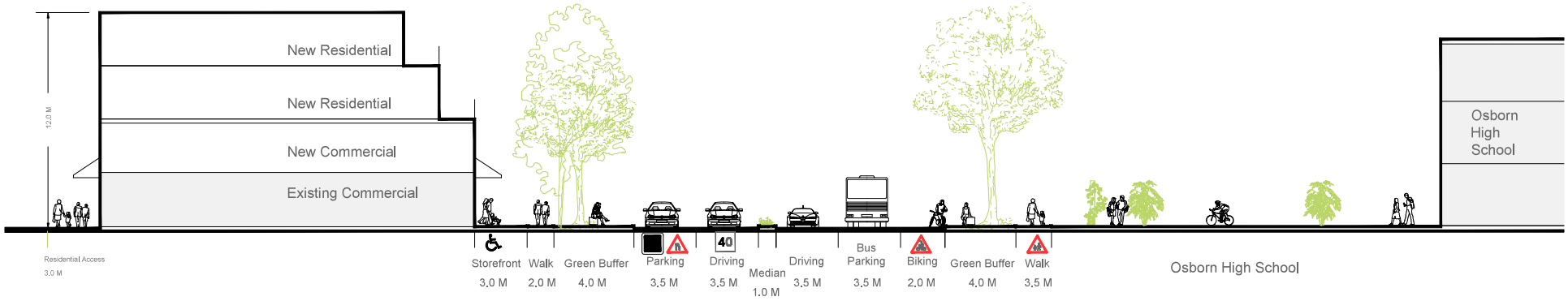
Figure 5.35 (above) Proposed Osborn model with node 2 Densification in 2044
Drawn by Author

Figure 5.36 (above) Residential node 3 near Osborn High School after densification.
Drawn by Author

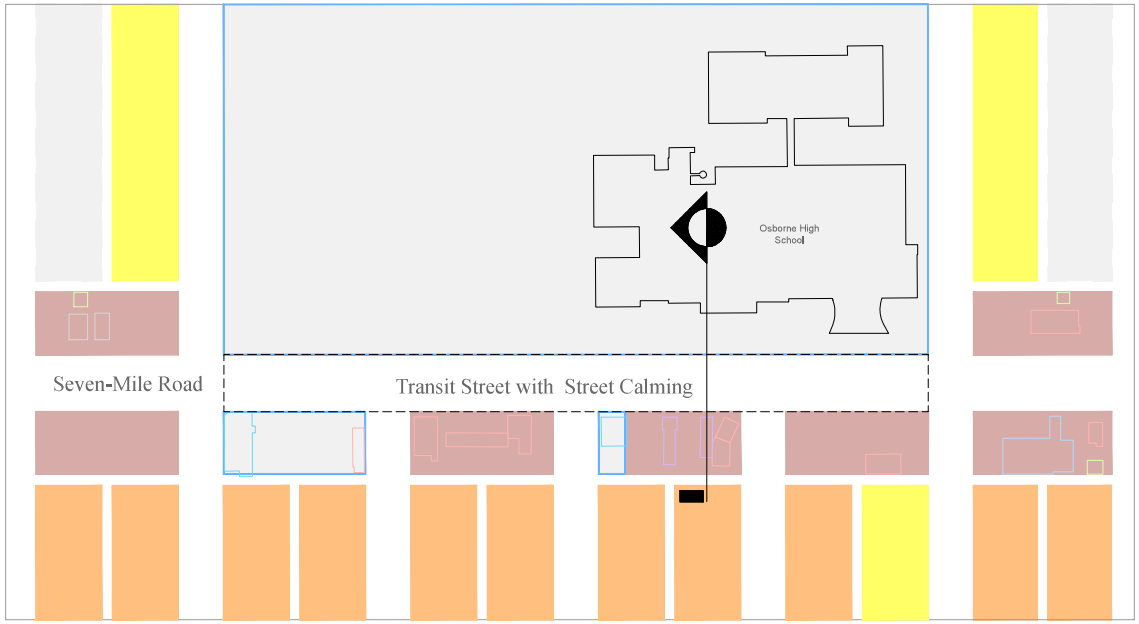
Minor street modifications would be necessary to support high density blocks surrounding the Seven-Mile Road. Portions of the street close to high density node and Osborn high school is proposed to employ traffic calming techniques to enhance pedestrian safety. Section-1, Figure 5.37 presents modifications to Seven Mile Road which is a public transit street. Existing street already has side-walks new designated bike and bus lanes are proposed.

The local residential streets as shown in street section-2 Figure 5.38, are proposed to have designated bike lane and street-side parking. The streets at the rear of existing residences is originally designed for private vehicle parking. These streets are proposed to be used as rear access to the new multi-unit residences with new proposed units above existing houses.

Section 3 as shown in Figure 5.39 depicts the relationship of streets at the rear of the existing residences where adjacent to proposed community gardens. The vacant parcels facing community gardens are proposed to have row housing units. Row housing is one building typology not originally found in Detroit and can be three to four story walk-up units to increase density as well as activate the rear streets.



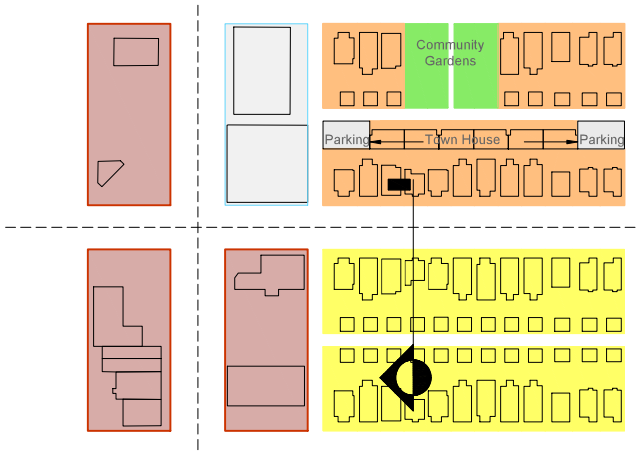
Street Section 1



Street Plan 1

Figure 5.37 (above) Proposed street modifications after densification.
Drawn by Author

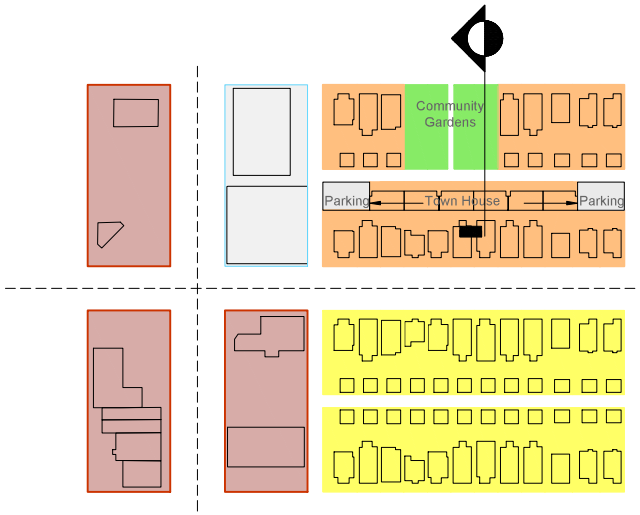
Street Section 2



Street Plan 2

Figure 5.38 (above) Street Section-2 at main residential street
Drawn by Author

Street Section 3



Street Plan 3

Figure 5.39 Proposed street modifications after densification.
Drawn by Author

Seven-Mile Visualization

Street modifications along Seven-mile Street would accommodate the high density neighborhood blocks. The building facades facing street are designed to adaptively use existing buildings of historic value. The street is designed for commercial activity and to re-activate the street all buildings are designed to have active street-fronts. This will release involuntary surveillance through eyes and feet on the streets.

Figure 5.40 (above) Existing Seven-Mile Street view
Source: Google Street-walk.

Figure 5.41 (above) Seven-Mile Road After Densification
Source: Drawn by Author

Main Residential Street Visualization

Street modifications along main residential streets are also aimed to re-activate the street through density built-up using three or four-story walk-up units. The upper level windows are designed to have walk-out balconies and roof-top patios so as to allow a more intimate street-to-building connection. The residents are encouraged to explore business or service ventures out at the live-work or live-retail building zones. The main level of these buildings are mixed-use for business, service or retail. The purely residential upper floors are designed with windows and balconies to encourage involuntary surveillance through eyes on the streets.

Figure 5.42 (above) Main Residential Street Before Densification
Source: Google Street-Walk View..

Figure 5.43 (above) Local Residential Street After Densification.
Drawn by Author

Rear-Residential Street Visualization

This visualization explores the relationship of streets at the rear of the existing residences with community gardens located across from the new proposed townhouse or row-house typologies. The three to four story walk-up units are designed to increase population density as well as activate the rear mostly pedestrian streets. The community gardens are designed for acting as a social hub while providing food security.

Figure 5.44 (above) Local Residential Street Before Densification
Source: Google Street-Walk View..

Figure 5.45 (above) Densified Residential Area With Community Garden,
Drawn by Author

Chapter 5 Endnotes

1 United States Census Bureau, *American Fact Finder*, (2018), https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml

2. Data Driven Detroit, *Osborn Neighborhood Profile*, (2013), https://datadrivendetroit.org/files/SGN/Osborn_Profile_2013_081913.pdf

3. Lynch, Kevin, *A Theory of Good City Form*, The MIT Press, Cambridge, Massachusetts, and London, England, (1981), Pg. 115

4. Tom Bergevoet, Maarten van Tuijl, The Flexible City: Sustainable Solutions for a Europe in Transition, nai010 Publishers (2016) Pg. 42-43

5. Perry, Clarence Arthur, *Neighborhood and Community Planning: Regional Survey, Volume VII Comprising 3 Monographs.* The Neighborhood Unit, Arno Press - A New York Times Company, New York, (1974) (pg. 25)

6. Lynch, Kevin, *A Theory of Good City Form*, The MIT Press, Cambridge, Massachusetts, and London, England, (1981), Pg.265

7. Ibid, Pg.266

8. Christopher Alexander, Sara Ishikawa, Murray Silverstein, *A Pattern Language: Towns, Buildings, Construction*, Oxford University Press, New York (1977) Pg. 152

9. Perry, Clarence Arthur, *Neighborhood and Community Planning: Regional Survey, Volume VII Comprising 3 Monographs.* The Neighborhood Unit, Arno Press - A New York Times Company, New York, (1974) (pg. 25)

10. Lynch, Kevin, *A Theory of Good City Form*, The MIT Press, Cambridge, Massachusetts, and London, England, (1981), Pg.266

11. Tom Bergevoet, Maarten van Tuijl, *The Flexible City: Sustainable Solutions for a Europe in Transition*, nai010 Publishers (2016) Pg. 14

12. Ibid, Pg. 20

CHAPTER SIX CONCLUSION

6.1 A Flexible Paradigm

Post-Fordist Detroit has a lot to tell the rest of the world about urban sustainability in a shrinking city. The CBD processes have disconnected from the periphery neighborhoods due to largely abandoned midtown. Detroit can no longer function as a mono-centric city. To implement interventions at a City District level therefore, would be futile. Detroit has to focus on intricate Street and Neighborhood District processes and build itself back from grass-roots level.

When analysing at the neighborhood level, to think that all past problems have been wiped clean after its municipal bankruptcy and Detroit will now move on to an easy fresh start is folly. People still hold years of skepticism, and racial biases still run deep. They hamper progressive claims of the City to 'bring back the people' and the promises of economic revival. Add in the spatial issues that Detroit has inherited, environmentally hazardous lands, huge inventory of poor housing stock and years of social neglect causing urban decay. Creating jobs and bringing back people will not solve these overnight. Detroit is now at a precipice through a lengthy journey of population decline that resulted in bankruptcy. It is now starting to regain a sense of composure but it really needs to think through its next steps.

To figure out where the key controlling processes lie, it is important to look at what is a city and why certain cities foster a healthy urbanity and others don't. For Detroit to thrive again, it needs to focus on the relationships of its social and economic processes. According to Jacobs, cities are full of strangers and a city with streets that can handle its strangers and continue to provide safety to residents among these strangers is a successful city.1 The four key factors outlined by Jacobs in her writings, to assimilate strangers within a city are rooted in street safety. Clear demarcation of public or private space, eyes on the street, sufficient resident density providing sufficient eyes on streets, and lastly continuity of urban fabric.3. The analysis scales for a city are City District,

— To be sure, city areas with flourishing diversity sprout strange and unpredictable uses and peculiar scenes. But this is not a drawback of diversity. This is the point, or part of it. That this should happen is in keeping with one of the missions of cities.[2] —

Top. Jane Jacobs, *The Death and Life of Great American Cities* (1961) Pg. 238

— To overcome slums, we must regard slum dwellers as people capable of understanding and acting upon their own self-interests, which they certainly are. We need to discern, respect and build upon the forces for regeneration that exist in slums themselves, and that demonstrably work in real cities. This is far from trying to patronize people into a better life, and it is far from what is done today. —

Top. Jane Jacobs, *The Death and Life of Great American Cities* (1961) Pg. 271

Neighborhood District and Street Neighborhood. Although the processes at the street level determine the vitality of a city, the ability of a city to foster healthy street processes are rooted within its ability to form strong Neighborhood Districts. Neighborhood District levels are where the residents can organize themselves into coalitions so as to make decisions regarding risks plaguing its urban processes. Detroit neighborhoods have failed on all four key factors for a healthy urbanism as outlined by Jacobs when analyzed at the three urban levels, especially the Neighborhood District and the Street Neighborhood levels. When a city is at a growth trajectory, its social and economic processes are predictable and therefore planned with viable results. The issues in a shrinking city is compounded because the social and economic processes are fractured and therefore cannot be planned predictably therefore the results are unforeseen, this is where planning as a discipline fails to provide a viable solution through conventional planning approach. For Detroit, failed economic and social processes have resulted in perpetual abandonment by its middle-class residents. Since the processes leading up to abandonment are unplanned, it results in a patchwork of neighborhood density. Few blocks are intact, others heavily empty and decaying, yet others have sporadic vacancy. This urban environment results in lack of public versus private spaces, reduced population density and less eyes on street and lastly an existing urban fabric with industrial corridors, railway tracks and inactivated large open spaces created discontinuity in the urban texture.

This thesis proposed one iteration of an intervention to create a functional urban identity, one that can handle strangers. Here, Detroit needs to focus first on gaining viable density. There are two possible ways of building a critical levels of population density. Number one, existing population from highly abandoned areas is relocated to more populous neighborhoods to build the critical population density, number two people from outside Detroit move into Detroit's neighborhoods. Since currently people are not moving into Detroit's neighborhoods, this thesis focused on the first possibility and proposes that Detroit needs to consolidate its most precious resource, its residents. In order to do that it has to recalibrate its spatial elements to a much smaller Street and Neighborhood District scale as it densifies. The most suitable urban model that can assist in responding at smaller scale is a polycentric urban net with higher density

nodes of vitality as proposed by Alexander.4
The elusive question is how the financial sustainability is incorporated into the process of densification. This thesis proposes that by consolidating the urban elements, the lands containing hazardous sites can be consolidated as voids and put to generative use. The consolidated voids, have a much greater agency to bring about economic shift if used for agricultural, solar or wind farming purposes. By providing larger tracts of land to private sectors for agricultural, solar and wind farming, the semi-skilled and skilled labour in the neighborhoods can have a new job market open to them. As lands are rehabilitated through brownfield remediation in the sites assessed as brownfields, solar farming and wind farming initiatives not only create a sustainable alternative to energy production which can be subsidized for the neighborhoods, but it can also provide skills training to the neighborhood residents so as to be gainfully employed. One approach could be to use the Detroit Public Works as the lead agency. Here the houses and civic infrastructure located in highly abandoned bereft zone can be assessed by the DPW and the funding allocated for maintenance of streets and infrastructure for those blocks can be routed to building and repairing structures in the stronger zones and the residents given the option to relocate to the stronger zones. A block by block transformation will thus occur through the incremental densification phases as suggested. The voids will incrementally grow emptier and lands handed over to private sector for generative ventures, so as to start engaging residents for training and later agricultural, wind and solar farming use. All through this time, the neighborhood alliances can continue to assess the future use of vacant properties and assist the PWD in repairing them to accommodate relocated families. Funding sourced through philanthropic donors, such as Skillman Good Foundations, Kresge Foundation and W.K. Kellogg to name just a few can be used for creating new economic ventures and since the footprint in which these funds are used can yield higher return.

The second possibility is to create a positive environment for immigration within the neighborhoods. This can attract the strengthening of existing ethnic character of each block or street neighborhood and could work positively in generating an immigration trend. Currently there are several neighborhoods within Detroit representing strong ethnic subgroups. The city of Hamtramck, has a high Bangladeshi and Indian community. Northeast Detroit has a strong Hmong community, in Southwest Detroit, Corktown has a strong older Greek and Irish community recently Mexican and Maltese immigrants have reportedly moved here

— City officials today prate about "bringing back the middle class," as if nobody were in the middle class until he had left the city and acquired a ranch house and a barbecue and thereby became precious. To be sure, cities are losing their middle class populations. However, cities need not "bring back" a middle class, and carefully protect it like an artificial growth. Cities grow the middle class. But to keep it as it grows, to keep it as a stabilizing force in the form of a self-diversified population, means considering the city's people valuable and worth retaining, right where they are, before they become middle class.[5] —

Top. Jane Jacobs, *The Death and Life of Great American Cities* (1961) Pg. 282

too. According to Wayne State University-Drawing Detroit maps, Chinese immigrants have moved in the west Detroit neighborhoods whereas Pakistanis and Japanese on the East side.6

The impact of ethnic enclaves has historically proven to result in stabilizing the neighborhoods in the past. Racial integration could help soften the ethnic grain within an otherwise predominantly black Detroit. The ethnic profile building can be explored with the densification process by using tools such as group-move. By allowing families who are living in smaller blocks within high vacancy zones to relocate to stronger neighborhoods and occupy blocks and streets in close proximity so as to retain their ethnic identity can be useful so as to maintain the stability of the new densified neighborhoods. A study by Kurt Metzger et.al. .7 claims that census 2000 confirms that the metropolitan regions of USA are becoming more ethnically diverse through immigration. Forming a new ethnic identity in stronger neighborhoods can thus potentially spur an immigration trend for Detroit's neighborhoods signaling stability and private investment for remodeling and repair of existing structures and infrastructure. Once again funds from PWD can be routed towards civic infrastructure upgrades so as to provide improved quality of infrastructure and amenities to the newly strengthened neighborhoods.

These are musings for few sustainable funding options that can yield a change in small phases possibly over a long time. The fundamental assumption is that it took Detroit several socio-economic forces many years to create the current transience and reversing this cycle could also take several years, the approach is to keep focused on making small modifications to this system to reverse the cycle and that may take several years as well.

Chapter 6 Endnotes

1 Jacobs, Jane, *The Death and Life of Great American Cities*, Vintage Books New York, (1961) Pg. 30

2. Ibid, Pg. 238

3. Ibid, Pg. 35

4. Christopher Alexander, Sara Ishikawa, Murray Silverstein, *A Pattern Language: Towns, Buildings, Construction*, Oxford University Press, New York (1977) Pg. 152-155

5. Jacobs, Jane, *The Death and Life of Great American Cities*, Vintage Books New York, (1961) Pg. 282

6. Wayne State University – Drawing Detroit. (Maps: Report) http://www.drawingdetroit.com/regions-percentage-of-asian-residents-higher-than-state-average/

7. Alan Berube, Bruce Katz, Robert E. Lang, *Redefining Urban and Suburban America: Evidence from Census 2000*, Brookings Institution Press, Metzger, Kurt et.al, *Living Together: A New Look at Racial and Ethnic Integration in Metropolitan Neighborhoods, 1990 – 2000,* (2007) Pg. 93 https://books.google.ca/books?hl=en&lr=&id=r62A497dYOYC&oi=fnd&pg=PA93&dq=Detroit+ethnic+profile&ots=tkhELMJaIb&sig=NS4yidqJKsEY_HYmTj9gl8h6U6g#v=onepage&q=Detroit%20ethnic%20profile&f=false