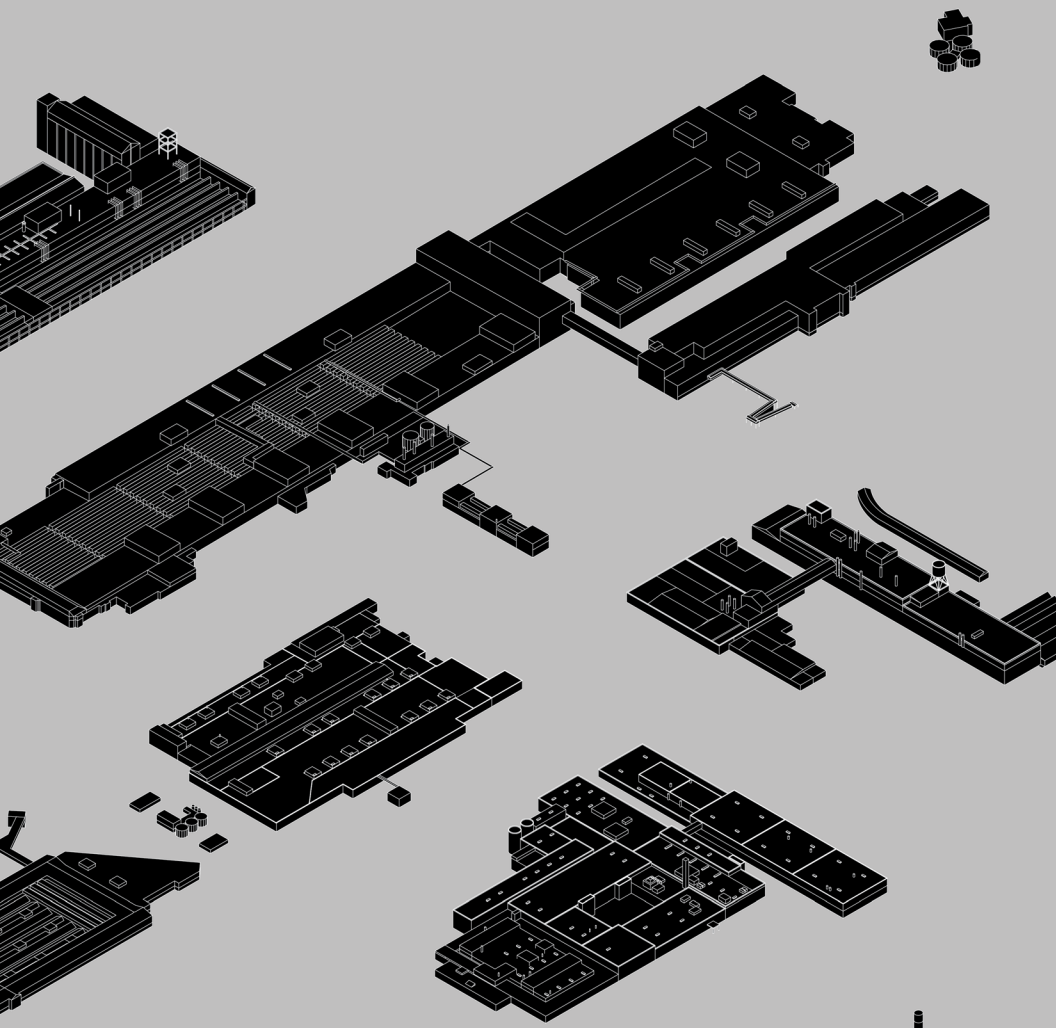
BETWEEN THE FACTORY & THE CITY

Liminal Spaces of the Automotive Plant



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ABSTRACT

As the market transitions towards electromobility, Canadian manufacturing cities in Southern Ontario are experiencing a period of uncertainty accompanied by significant population growth. Where many approaches provide a broad overview of regional changes and industrial capacity, this project contributes to the existing discourse by focusing on perceived conditions in the built environment. Developing a multiscalar, mixed-media approach, this study investigates spaces of physical transition surrounding large automotive plants during this critical point of transformation. Central to this inquiry are the Canadian manufacturing operations of the 'Big Three' (Chrysler, Ford, and GM) in Windsor, Ontario. Field observation is combined with analytical drawing techniques to provide a visual counter-perspective—of marginal spaces and workers in an industrial city—to a dominant narrative, which implies that universal prosperity is synonymous with mass production (and consumption) of the electric vehicle. This analysis will form a starting point for exploring future potentials for the reuse or integration of megafactory structures within the existing city fabric, providing alternatives for urban growth and densification.

Contents

I Workers within the Ford Windsor Engine Foundry, 1966 / Windsor City Archives
II The main gate at Windsor Assembly Plant in 1959 / Stellantis Media North America.
III Highway Interchange in front of the New Ford Essex Engine Plant, 1987 / Windsor-Essex Development Corporation


C H


RYSLER

Immediate context of the Windsor Engine Plant, 1969. Today, this section of the plant is vacant. / Ford Heritage Vault

1.0 Introduction

In the early summer of 2023, two competing narratives about the automotive industry dominate Ontario's public media. The first can be stated in a single slogan: "*The future is electric.*"[1] Accompanied by a retro-themed commercial depicting everyday citizens with their hair standing on end, the PSA claims universal benefits for all Ontarians and the broader Canadian economy.[2] Meanwhile, operations in the nation's manufacturing capital of Windsor, Ontario are far from the success story circulated by the provincial government. A multi-billion dollar battery plant—critical to the region's transition to electromobility—has ceased construction, threatening to move its investment and employment opportunities across the border where American policy provides new incentives for production.[3] Weeks of tense negotiation culminate in a $15 billion subsidy promised by the federal and provincial governments to the automotive conglomerate, Stellantis. This agreement is far from unprecedented but is yet another instance in the series of bailouts and incentives that have maintained the Canadian automotive industry for the past half-century.

Less than five kilometers away from this new Stellantis factory, a massive automotive plant larger than the Pentagon sits half empty. The future of this site is uncertain. Only two years ago, Ford Motors listed the property for sale after ceasing the production of engines for a brief period. Formerly the largest manufacturing venture in Southern Ontario, employing over 15,000 workers at its peak, Ford's Windsor operations are a shadow of what they once were.[4] Where the construction of new electric automobiles is slated to bring wealth and prosperity to the region, this transformation threatens the existence of factories such as this engine plant.

While the shift to electromobility may change some aspects of existing infrastructure, it does not inherently demand a radical restructuring of the built environment. In a global city such as Toronto, the differences brought about by the adoption of the electric vehicle may appear minor. Leveraging the same landscapes of highways and the suburban periphery, the EV adheres to the familiar logics of mass consumption and autocentricity.

Where this transition will have the greatest impact is in cities of industrial production: in the small and medium-sized car towns that are scattered

across Southern Ontario. Seldom do spaces of industry take up space in our collective imagination; however, in a city like Windsor, these places have become characteristic of their urbanity. Automotive manufacturing is largely responsible for the growth of the city and is deeply seeded in its identity: from the creation of historic towns to the naming of monuments and roads.[5] In these cities, the urban megafactory is not only a central component of working livelihoods but a significant discontinuity in the urban fabric. As the industry transforms to sustain the production of electric vehicles, the fate of these sites hangs in the balance.

Many of Windsor's former megafactories are either abandoned or demolished. Of the twelve that have existed since 1904, only three remain in operation. The rest are either voided or have been reused as large-scale storage facilities.[6] Neither option is beneficial for former workers, who are required to find work elsewhere or retire—often after working for the automotive company for many decades. A third possibility has recently emerged: integration. Drawing on cases of mixed land uses and urban factories within the city, a new academic discourse advocates for the integration of productive industrial spaces. Not only does this allow for the densification of the existing fabric—decreasing dependency on the automobile to commute from work to home—but it also allows industrial workers to participate in the everyday rhythms of the city, rather than the alternative isolation that has become prevalent in autonomous business and industrial parks.

This research aims to provide an alternative perspective to a dominant discourse, which implies that universal prosperity is synonymous with mass electromobility. Through the description and analysis of spaces between the factory and the city, this study investigates potentials for integration with the existing urban fabric and subsequent investment in communities connected to this industrial legacy.

The following study will comprise four main sections. The first section will broadly describe the evolution of industry, situating the contemporary case of Canada's transitioning automotive ecosystem within the larger industrial network of the Great Lakes Region. A brief history of the Canadian automotive sector will place Windsor at the center of the industry, illustrating the city's importance in a century-long struggle for production. The subsequent section will provide a brief overview of the literature and discourses referenced in this study, as well as describe the methodology and modes of inquiry employed throughout. This will be followed by the main body of written observation and analysis, examining three cases of past and present factories and their relation to the city. Finally, conclusions and further applications will be discussed in the closing section.

Notes

1 *The Future Is Electric* (Government of Ontario, 2023), https://www.youtube.com/watch?v=W72eiLn12k0.

2 For further analysis of this policy and media, see *Section 1.3—Electric Society*

3 The Inflation Reduction Act (IRA) provides significant incentives for the production of electric batteries in the United States. Canadian subsidies have attempted to match this amount—a decision that is stated to have preserved the future of the industry.

4 Ian Austen, "Once Home to Ford, Canadian City Is Losing Auto Work," The New York Times, September 14, 2005, https://www.nytimes.com/2005/09/14/business/once-home-to-ford-canadian-city-is-losing-auto-work.html.

5 The legacies of both Ford and Chrysler have been monumentalized throughout the city. The influence of Ford is still remembered by an assortment of murals and monuments adjacent to its Windsor Engine plant. This area, formerly built up to support employee livelihoods, is still known as 'Ford City.' Aside from being the city's largest contemporary employer, Chrysler's influence can be seen in the E.C. Row expressway—a major highway named after the company's former president.

6 An exception can be observed in the city's West. The former GM Trim plant manufactured parts for company, operating between 1965 and 1996. It is currently the city's largest brownfield redevelopment, with the construction of single-family homes, apartments, and a hotel.

Chrysler Canada Headquarters, 1950s / Windsor City Archives

Robotic arms have completed most of the welding at the Chrysler Assembly Plant since their addition in 1983 / Stellantis Media North America

1.1 Industry Reborn: Towards the Automotive Factory of the Future

A mechanic whir shifts automobile chassis along an automized conveyor belt while robotic arms move to the rapid rhythm of assembly.[1] These small scenes fit into the complex choreography of the Stellantis Assembly Plant in Windsor, Ontario—an industrial facility that boasts one of the largest building footprints in the nation. The city of Windsor has long held the title of Canada's automotive capital; however, this single plant is the only existing factory that has been transformed for the coming shift to electric vehicles. In the face of climate change, electrification is predicted to be one of the most feasible means of cutting fossil fuels and reducing carbon consumption at a planetary scale. The electric vehicle (EV) is often conceptualized as a silver bullet to this crisis; however, its reliance on the mass production model mediated by the assembly line and reflected in the colossal size of its factory provides a basis for cynicism. With the origins of this architecture deeply rooted in the scaling of industry, one might be critical of the systemic transformation promised by this technology.

The following essay will establish a starting point for this research project, which aims to provide a multiscalar analysis of the megafactory typology. This introduction begins with a description of the evolving relationship between the urban fabric and its supporting industry, from the migration of production to the Global South to its recent return and projected future. This is followed by a brief description of the Great Lakes Region and its historical importance to North American industry, as well as its potential for transformation. Within this ecosystem, the critical position of Southern Ontario and the City of Windsor will also be explained.

Historic shifts in industry are made evident not only in their changing modes of production but in spatial transformations that accompany each phase. Where the first industrial revolution is associated with the beginnings of widespread urbanization, the assembly line and mass production are closely intertwined with monofunctional regions and company towns. The urban megafactory has long been regarded as a relic of Fordism—a socioeconomic model predicated on supplying regional markets with localized labor. As such, entire cities and regions became dependent on single industries—namely the automotive sector. Beginning in the 1960s, globalized markets prompted transnational corporations to leverage profits by offshoring production,

leading to the rapid decline of Fordist factories and cities. The subsequent decades of neoliberalism were marked by increasing consumption in the Global North and production in the South, as free trade and the rise of modern logistics further incentivized the shift of industry from advanced urban centers to deregulated zones in the developing world.

In the midst of a fourth industrial shift, characterized by extensive automation and the role of machine intelligence, the return of industry to developed countries is motivated by commitments to sustainability, as well as demands for rapid innovation. In this new era, it is commonly believed that the situation of research & development operations in geographical proximity to manufacturing facilities provides a competitive edge. Following this movement, urban scholars have begun analyzing differences in the built environment from the Fordist stage to new integrations of industry within the city.[2] As such, industrial urbanism—often studied at the scale of small and medium-sized cities—has emerged as a new stream of scholarship succeeding Post-Fordist studies of post-industrial transformation and the development of the Global City.[3] These industrial cities form the infrastructural backbone of the North American economy, acting as the landscapes of supply to the demand of their cosmopolitan counterparts—all while remaining invisible in the public imagination. Formerly abandoned in the globalization of production, these cities are now perceived as crucial assets in the new industrial reform. With a lack of large-scale investment throughout the post-industrial era, an array of urban conditions has developed around existing Fordist factories—a phenomenon that has been largely overlooked in contemporary urban discourse.[4]

As the former industrial heartland of North America and the automotive sector, the Great Lakes Region becomes a critical focal point for the return of industry. The success of large urban centers has varied greatly on both sides of the border, with white-collar capitals such as Toronto thriving as global hotspots for real estate development and investment, while blue-collar cities such as Detroit face emergency management and deurbanization.[5] Formerly deemed the 'Rust Belt'—following processes of widespread disinvestment—new plans have attempted to reimagine regional revitalization through the appropriation of existing industrial networks and resources.[6] In the Canadian context, these implications are most influential for Southern Ontario—a region accounting for the large majority of the nation's automotive sector. Not only has this territory been largely incorporated into American manufacturing operations, but it has also adopted its southern neighbor's many auto-centric reforms, evident in the dominance of the highway system and urban sprawl found throughout the province.[7] For the provincial government, electrification of the automotive industry is seen as a crucial

pivot point toward meeting sustainable goals and attracting technological investment.

The Critical Role of Southern Ontario

Central to this transitional process is the role of Windsor, Ontario. Located on the national border, Windsor has a long history of cross-border exchange and industrial cooperation with its American counterpart, Detroit. Where the notorious Motor City is known as the birthplace of Fordism and an integral node in the automotive ecosystem, Windsor has been largely absorbed into its regional geography—accounting for Canadian operations that complemented American factories across the Detroit River. Although many of the conditions apparent in Detroit can also be observed in Windsor, national policy and reforms have affected the respective automotive industries of each city differently—the shaping local identity and the built environment contingent on multiple factors at the municipal, provincial, and federal levels.[8] Despite these differences, Windsor remains a critical case for examining the transformation of the automotive industry across the region, as well as its urban implications in the Great Lake Region's industrial cities.

The city of Windsor has long been regarded as the birthplace of the Canadian automotive sector—an industry that was born out of the nation's protectionist trade policies. High tariffs on products imported from the United States incentivized the creation of Canadian plants, which supplied both a domestic market and the British Commonwealth.[9] At the beginning of the twentieth century, the automotive industry was characterized by fierce competition driving rapid innovation; however, by the 1920s, many automobile companies on both sides of the border were out of business—including all Canadian automotive companies.[10] Manufacturing automobiles was an expensive venture that was quickly dominated by three large companies: General Motors, Ford, and Chrysler. Throughout the twentieth century, these corporations formed the modern triumvirate of the North American automotive industry—the Big Three—with significant influence on the negotiation and conditions of national policy.

Ford of Canada was the first of the three to set foot in Canada, with Canadian business owner Gordon McGregor convincing Henry Ford to expand across the Detroit River in 1904.[11] McGregor housed the Canadian operations along the riverfront in a former wagonworks factory—a lucrative venture that exploded in the next decades following the release of the Model T. General Motors followed, with the creation of its transmission factory and headquarters in 1910.[12] Chrysler was the last of the three to establish a plant in Canada, acquiring the former Maxwell-Chalmers plant in 1921 following

the merger between Maxwell Motors and Chrysler.[13] From these beginnings, the Big Three proceeded to build a number of factories in Windsor and surrounding Southern Ontario—claiming their place in the provincial and national economies.

Since establishing their starting points in Windsor, the Big Three have had a significant influence on the city. In turn, the city has also accompanied its parent corporations through various transitional periods throughout the twentieth century. From wartime manufacturing to the creation of the transcontinental auto pact and the influx of Japanese imports, Windsor has been at the heart of the Canadian automotive industry and at the geographical center of the repeated restructuring of the sector.[14] As the industry turns towards electromobility, the city will continue to play a key role in the contemporary transition.

Former assembly at the Windsor Engine Plant, 1955 / Ford Heritage Vault

Notes

1 Video footage from within the plant was obtained through the Stellantis North America Media portal and analyzed to supplement observations outside of the plant.

2 Eran Ben-Joseph and Tali Hatuka's *New Industrial Urbanism* (2022) is one such publication that observes the evolution of industrial typologies in different cities.

3 Neoliberal scholarship often centers around the emergence of archetypes such as Richard Florida's Creative City (2002) and Saskia Sassen's Global City (1991). As the seats of formal governance and financial power, larger metropolises have taken the spotlight away from smaller-scale cities impacted by the same globalized market.

4 For further elaboration on this literature, see *1.2—Industrial Urbanism.* This section reviews all relevant works cited in this introduction, while also discussing how existing models will inform the course of this research.

5 Various Great Lakes cities are profiled in *Third Coast Atlas* (2017).

6 Among these projects, Michigan-based firm RVTR's *Infra Eco Logi Urbanism* (2015) leverages these infrastructural potentials towards a system of 'Conduit Urbanism' using existing highway systems and mobility to create a more interconnected region. While many of their utopic designs propose new equitable and efficient typologies, the authors often treat political-economic conditions as similar or homogeneous in both countries, which is often not the case.

7 *Infra Eco Logi Urbanism* (2015) duly notes the congestion of Ontario's 401 Highway as North America's most populated freeway by volume—handling suburban traffic alongside industrial trucking.

8 Dimitry Anastakis' studies on the dissolution of the Auto Pact and the emergence of the Canadian automotive industry provides a comprehensive introduction to changing policy and its effects.

9-10 Dimitry Anastakis, "The Canadian Auto Industry, 1900-1963," in *Auto Pact: Creating a Borderless North American Auto Industry, 1960-1971* (Toronto: University of Toronto Press, 2005), 17–41.

11-12 Dimitry Anastakis, "From Independence to Integration: The Corporate Evolution of the Ford Motor Company of Canada, 1904-2004." *The Business History Review* 78, no. 2 (2004): 213–53.

13 Charles K. Hyde, *Riding the roller coaster: A history of the chrysler corporation.* Detroit: Wayne State University Press, 2003.

14 Dimitry Anastakis, *Autonomous State: The Struggle for a Canadian Car Industry from OPEC to Free Trade* (Toronto: University of Toronto Press, 2013).

1.2 Industrial Urbanism: Notes on an Emerging Discourse

In a landscape of highways and prefab warehouses, the hand of the architect appears to be nowhere in sight—and yet these sites have become ubiquitous around the world. It is in these non-places that industrial zones are developed to supply the demand of their urban counterparts. Although architects played a large role in the design of early factories, their role in the industrial dimension has diminished in past years following the explosive growth of post-war years and the transition from modes of localized production to distributed supply chains. It is only recently that architectural discourse has revisited these more "technical" aspects of the built fabric, examining their potential for change, as well as their social and political dimensions.[1]

The past century has seen both a spatial and cognitive separation of industrial spaces from other spaces of living and recreation. This phenomenon has largely resulted from the planned segregation of spaces of production and consumption, arising from modernist streams of urbanism that emphasized the negative public health effects of heavy industry. As Markus Schaefer writes in the introduction to *The Industrious City:* "The private interests and global capital running such industries are seemingly at odds with an idealized conception of cities dedicated to their citizens and their Right to the City."[2] Schaefer proceeds to challenge this notion, arguing that industry has always been intertwined with processes of urbanization and that in the current period of change, there is no better time to reevaluate the role of industry in the design of the built environment.[3] The following section will provide a brief overview of some existing streams of inquiry that examine the role of industry and distribution—from critical evaluations of infrastructural space and logistics to the integration of urban manufacturing—as well as relate these sources to my own research methods.

Infrastructure is perhaps the best starting point for investigating urban industry. Composing the physical framework for all urban activities, infrastructural space, like industry, remains largely under the radar. In *Extrastatecraft*, Keller Easterling writes about the design of infrastructure as the design of "active forms"—considering how seemingly banal objects and systems infiltrate and shape everyday life.[4] Easterling emphasizes the power-laden potentials leveraged by repeating typological forms, policies, and narratives—likening urban systems to softwares that may be hacked

or programmed.[5] All three of these elements are essential to my following investigation of the automotive sector, which relies on the typology of the monofunctional megafactory, a required alignment of neoliberal policy, and subsequent narratives that represent the sector as essential to the region's identity and success.[6]

Furthermore, the role of infrastructure in modes of production has been studied by architects Jesse LeCavalier and Clare Lyster in their specific investigations of logistics and how distribution operates at human, architectural, and territorial scales.[7] This multi-scalar examination of select transnational corporations will be applied to my own research, as I examine the operations of the 'Big Three' automotive companies. While not explicitly related to the topic of industrial urbanism, adopting methods of inquiry related to infrastructural and logistical systems provides a means of situating a singular automotive city in the larger context of a networked industrial region and recognizing the latent potentials in similar urban centers.

A parallel discourse recognizes the role of industry in surrounding ecological systems, placing industrial operations—from logistics to mining—in the realm of the Anthropocene. Both *Technical Lands* and *Third Coast Atlas* present theoretical primers and detailed descriptions of the Great Lakes Region.[8] Similarly, this study will aim to create a descriptive portrait of Windsor as a border city and integral node within this region, constructing both a historical and visual case for the city's importance through a series of essays, case studies, and investigative drawings.

Finally, a focus on manufacturing and its practical integration within the existing city has been conceptualized under an emerging umbrella of Industrial Urbanism. Within this stream, scholars have posited a number of industrial typologies—evaluating patterns of distribution in the built environment, as well as the historical causes and future effects of each form. As formerly mentioned, Hosoya and Schaefer's *Industrious City* outlines the changing tides of industry that have enabled a shift in the existing urban-industrial dynamic.[9] Focusing on the case of Swiss industry, the authors demonstrate how methods of clustering and redevelopment have benefitted existing industrial conditions and continue to enrich livelihoods and cities in the region. In *New Industrial Urbanism*, Tali Hatuka and Eran Ben-Joseph delineate three industrial morphologies: autonomous, parallel, and integrated zones.[10] Where autonomous and parallel industry adhere to logics of separation, integrated industry situates spaces of manufacturing close to other parts of the city.[11] It is this third morphology that Hatuka and Ben-Joseph, regard as the most sustainable and beneficial form of urban industry, alongside their contemporaries.[12] Both of these publications

interrogate the role of various land uses, and how they function in proximity to manufacturing and industrial zones. Following this model, my spatial analysis of various sites will observe the relationship between megafactories and finer-grain land uses, adopting the morphologies outlined by Hatuka and Ben-Joseph.[13]

Further elaborating on elements that form these morphologies, Nina Rappaport considers the product manufactured by different factories as both an enabler and disabler of certain industrial forms.[14] While lighter industries—such as textiles and the assembly of smaller product— require less space and are ideal for hybridized or densified industrial buildings, heavy industry—such as the assembly of automobiles and the manufacturing of automotive parts—may be restricted to larger areas on the urban hinterland. As such, I will also analyze modes of production and the nature of industry at each site, considering how these factors may influence a site's potential for transformation.

Although the literature surrounding industrial urbanism has already expanded to encompass a broad range of topics and industries, there exists a gap between theoretical and practice-based positions. Theoretical positions—such as those investigating infrastructure space and technical lands—are largely critical of industrial potential, focusing on an inequitable and toxic legacy that has spanned generations, alongside specific lived experiences. Contrasting this approach, practical positions—such as those of industrial urbanism—often operate from a top-down perspective, without extensive criticism of the neoliberal condition or exacerbated inequality. Through a combination of both positions, my research will draw on land-use categories for typological comparison, while acknowledging how these various forms of industry have contributed to socioeconomic inclusion and exclusion throughout their evolution.

Notes

1 Charles Waldheim and Jeffrey S Nesbit, eds., *Technical Lands* (Berlin: Jovis, 2022).

2-3 Hiroshi Hosoya and Markus Schaefer, "The Industrious City," essay, in *The Industrious City: Urban Industry in the Digital Age* (Zurich, Switzerland: Lars Müller Publishers, 2021), 25–44.

4-5 Keller Easterling, *Extrastatecraft: The Power of Infrastructure Space* (London: Verso, 2016).

6 For additional analysis of policy and narratives, refer to *Section 1.3—Electric Society*. Active typologies will be discussed further on in this review.

7 See Jesse LeCavalier, "Shell Games," essay, in *Steel Cities: The Architecture of Logistics in Central and Eastern Europe, ed. Kateřina Frejlachová et al.* (Prague: Vi Per ; Park Books, 2020), 164–75. and also, Clare Lyster, *Learning from Logistics How Networks Change Our Cities* (Basel: Birkhäuser, 2016).

8 See aforementioned *Technical Lands* (2022) and also, Daniel Ibanez et al., eds., *Third Coast Atlas: Prelude to a Plan* (New York: Barcelona, 2017).

9 Schaefer, "The Industrious City," 25–44.

10-12 Tali Hatuka and Eran Ben-Joseph, *New Industrial Urbanism: Designing Places for Production* (New York: Routledge, Taylor & Francis Group, 2022).

13 See *Section 2.0—Methodology* for further elaboration on these morphologies, as well as how they relate to respective industries in Windsor

14 Nina Rappaport, essay, in *The Industrious City: Urban Industry in the Digital Age,* ed. Hiroshi Hosoya and Markus Schaefer (Zurich, Switzerland: Lars Müller Publishers, 2021), 175–83.

Spadina Expressway and Ontario 401 Highway Interchange, 1981/ Boris Spremo, Toronto Star Archives

1.3 Electric Society: Why is Everyone's Hair Raised?

A recent public advertising campaign depicts various city-dwellers going about their daily activities—but with their hair mysteriously electrified. From construction workers enjoying a coffee break to birdwatchers peering into an unknown sky, each subject is shown in a posture of anticipation. It is not until the final seconds of the ad that the announcement of Ontario's leadership in electric battery and vehicle manufacturing is deemed the cause of widespread excitement.[1] For a PSA on the expansion of the automobile industry, the whimsical imagery appears completely unrelated; however, the depiction of a universally positive impact of electromobility in daily lives is central to the government's narrative towards justifying substantial investment in the industry. The following analysis reviews the Ontario government's 'Driving Prosperity' plan and interrogates various discourses implying that investment at any cost is the only way forwards for the region's economy. The plan—encompassing a broad range of policy changes, campaigns, and strategic frameworks for the automotive and technology sectors—was first implemented in 2019 and spans a decade, projecting to 2030.[2] I will begin with a discussion of the pillars and principles outlined in the plan, relating these frameworks to existing capitalist and neoliberal logics. In the latter part of this essay, evident narratives and contradictions in the plan will be closely examined to demonstrate a dissonance between stated ideals and existing conditions.

Pillars and Principles: Constructing an Exploitative Framework

The plan's four principles are stated as follows: *Partnerships, Forward-Looking (10 years), Leveraging Assets, and Accountability*.[3] While each of the values occupies an equal position in the list, the significance attributed to each principle throughout the plan varies greatly. *Partnerships* are evident in the government's various agreements with private corporations listed throughout the plan. From deals with Stellantis and Honda to new initiatives funded by Uber and Google, both automotive and technology companies are listed as key stakeholders within Ontario's economic ecosystem.[4] Connections between public and private funding suggest that the government's financial "commitments" are matched or surpassed by private industry, without attributing growth in employment and development tothese substantial tax breaks. Rather, subsidies are deemed "savings" or "returns," suggesting

a circular redistribution of wealth without drawing distinctions between the local workforce and transnational corporations.[5] The plan's second principle, *Forward-Looking*, merely states the scope of the strategy while promising generational wealth extending well beyond the ten-year limit.

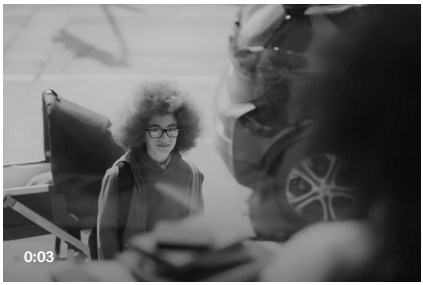
The following principle, *Leveraging Assets*, lists institutions, an educated workforce, and manufacturing companies as existing resources to be exploited.[6] Beyond these presences, Northern Ontario's mineral wealth is a crucial aspect of electrification. Although the process of mining rare metals has caused recent contestation over the destruction of Indigenous land and existing peatlands in the region, this is not reflected in the plan.[7] Rather, the language of "unlocking" is used to abstract these factors, throughout provincial promises and strategies, reducing the invasive process of extraction to one of liberation.[8, 9] Finally, while *Accountability* is listed as a concluding principle, nowhere else in the document is this tenet elaborated upon.

Unlike the broadly established principles, the pillars of 'Driving Prosperity' are upheld by numerous points of action at various levels of governance. A *Competitive Business Climate* is listed as the first pillar. Promising the "modernization" of regulation, this element of the plan clearly draws parallels between the objectives of the provincial government and international investors, gesturing back to principles of partnership and leveraging of assets.[10] Throughout the document, existing regulations aimed at worker protection and the welfare system are referred to as "red tape"—deeming these bylaws unnecessary and burdensome.[11] The rollback of these protective policies is exemplary of neoliberal logic— a hegemonic paradigm that calls for the creation of a new entrepreneurial government, in service to a privatized economy. In an overview of the global conversion towards this new political discourse, David Harvey deems this process a form of "creative destruction," demonstrating how the exacerbation of socioeconomic inequality is structured through the removal of the social state.[12]

This cutting of "red tape" can be directly observed in the cancellation of Bill 148 and the defunding of the Workplace Safety and Insurance Board (WSIB). Bill 148 was passed in early 2018, increasing the minimum wage and providing additional securities, the legislation aimed to alleviate workplace instability under the *Fair Workplaces, Better Jobs* Act.[13] Following the election of the Ford administration, this bill was repealed less than one year after its enactment under a new Bill 47, titled *Making Ontario Open for Business.*[14]Alongside changes to employment policy, the second phase of 'Driving Prosperity' applauds the provincial government's reduction of funding for the WSIB, derived from a premium paid by Ontario businesses, as well as an act that redirects billions in reserved funds—deemed

F1.01 “The Future is Electric”

A coffee-drinker looks up from reading the newspaper. Electronic music plays in the background.



The individual points in recognition to schoolchild, who looks back in admiration.

A family walks past the espresso shop, closing the scene. A vehicle, supposedly electric, hides in the foreground.

Two construction workers smile while having a conversation over break. Perhaps this is a nod to blue collar workers in the industry.

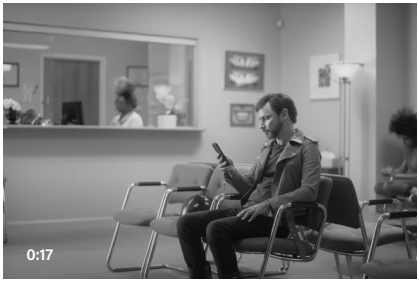
A student scores first place for their science project, turning a potato into an electric circuit. The Ontario Government plans to prepare workers for auto industry jobs as early as elementary school.

A retro-style television depicts a workout trainer, also influenced by the electrified hairstyle. It’s worth noting that the Canadian car economy last experienced large growth during the 1980s.

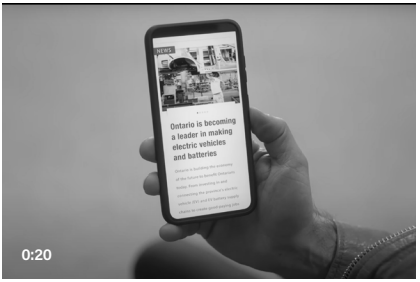
Frame-by-frame analysis

An older individual works out alongside the video. A family photo in the background depicts all members with their hair standing up, as if to suggest a similar condition across time.

Two apparent birdwatchers look into an unknown sky, waiting for the next appearance.



The first individual without hair raised is depicted in a dental waiting room. Thier eyes widen as they look at their phone.



A news headline claims that Ontario is becoming a leader in the manufacturing of both EVs and batteries. Below, the “economy of the future” and “good paying jobs” are promised.

The camera dramatically zooms in on this protagonist as their face “lights up” and hair rises.

The receptionist looks back. Their eyes widen in shared excitement.

"surplus"—back to employers.[15] Although the plan claims that this decision has not had a negative effect on impacted workers and has an overall positive impact on the economy, it remains a key example of redistribution from a public welfare program back to privatized wealth. The government has additionally committed $56.4 million to develop a network for its second pillar, *Innovation*.[16] While this fund will provide a starting point for research, development, and investment in smaller and medium-sized companies, this amount is dwarfed by multi-billion dollar subsidies promised to transnational corporations, such as Stellantis and Volkswagen.[17]

Last but not least, the cultivation of *Talent* in Ontario's education system is central to the long-term execution of this plan. Throughout the document, some mentions of existing skilled workers are made; however, the majority of potential is attributed to Ontario's youth and the next generation of workers.[18] Awareness of jobs in the automotive industry is stated to be lower than desired, as the report claims, "we are not preparing our children for this future."[19] As such, creating a multi-stage "talent pipeline" is proposed, with the education surrounding automotive innovation and technology planned to extend from elementary school to post-secondary campuses.[20] This will also be ritualized in the creation of an "Ontario-Made Manufacturing Day," to be celebrated annually throughout the public education system.[21] Such strategies for exposure from an early age are reflective of current curricula in the Canadian Arctic, preparing Indigenous schoolchildren for careers in the mining industry. Sheila Watt-Cloutier critiques these programs for prompting students towards industry-specific positions and skillsets from a young age, rather than pursuing creative and critical vocations.[22] This is but one of the declared strategies of an emerging framework that is projected to become deeply engrained in the livelihoods of Ontarians throughout the province. Where prosperity is placed front and center in this report, the question must be asked—prosperity for whom? And at whose cost?

Narratives & Contradictions: Deconstructing a Myth of Eternal Progress

A stark change in imagery between the provincial plan's first and second phases can be seen in the abandonment of faces and laborers on the assembly line for futuristic renderings of an unknown "car of the future." Published two years apart, the visual identity and language of both reports vary considerably, with the first phase dedicated to identifying current problems and countering them with immediate actions, while the second phase projects far into the future. Despite these differences, the same graphic of an accumulating bar chart overlies key images from both phases, implying the growth embodied by each scene. The language of opportunity with little to no setbacks or cost is employed throughout both documents. While the scaling of the electric

vehicle industry is seen as a clean and unprecedented direction forward, this transition builds upon historic dependencies on large corporations and a single sector that led to its former decline.

The electric automobile is seen as the only answer to economic instability and preservation of livelihoods—the vehicle itself is conceptualized as a symbol for Southern Ontario. Emerging features of autonomy and connectivity provided by the future automobile are reflected as intrinsic properties of its manufacturing geography. Thus, the continued presence of the automotive industry is naturalized by the plan which suggests that this sector of manufacturing is deeply rooted in the region's past, present, and future. Furthermore, the automotive industry is depicted as an inherent part of collective and individual identity. Consider the following excerpt, concluding the plan's second phase:

> "[W]e know one thing won't change: the unceasing drive and passion of the people working in Ontario's auto industry. It's in their DNA. Our government will be their greatest champion, every step of the way."[23]

Where the industry is seen as central to working families, generational wealth, and communities, nowhere is the actual labor required for manufacturing described, nor the current working conditions of auto sector employees. Rather, their livelihoods are abstracted for the purpose of portraying increased quality of life for all individuals involved in the EV sector.

Despite the consistency of the narrative that electromobility is here to stay, differences in the 'Driving Prosperity' plan's broader position on sustainable industry and transnational cooperation, and its actionable objectives are made apparent. While EVs are marketed as a carbon-neutral alternative to existing gasoline vehicles, their production evidently requires a level of emission. The Ontario government cites the removal of the carbon tax through the *Cap and Trade Cancellation Act* of 2018 as a crucial aspect of allowing Ontario companies to "grow, create jobs, and compete around the world."[24] This cancellation implies that growth can only be accomplished at the cost of the environment, a theory reflected in the Environmental Kuznets Curve, which theorizes a reduction of environmental depletion after a certain point of economic development. Although Canada is well past the turning point of advanced development, the government's claim to competitiveness is seemingly justified by its representation of neighboring countries as having the upper hand.

In the first phase of the plan, the Southern United and Mexico are depicted as fierce competitors responsible for the decline of industry in Southern

Ontario's manufacturing lands.[25] This position shifts over the course of the next two years, as tariff negotiations attempt to renew a reciprocal relationship, primarily between the United States and Canada; however, the US continues to be seen as the advantaged economy.[26] This provides a basis for repealing climate regulation to enhance Canadian competitiveness—one of many short-term actions taken to stimulate the EV sector with long-term costs.

Conclusion

Although the provincial plan towards electromobility promises widespread prosperity, the persistence of inequality and privatized interests are evident throughout. Despite the assurance of new wealth, yet to be accessed, the framework upon which contemporary policy and development are based in long-standing strategies of dispossession and replacement, as demonstrated in the plan's pillars and principles. Narratives of perpetual employment and a regional identity grounded in the automotive sector seek to further naturalize the presence of the industry, assuring ongoing opportunity amidst a persistent struggle for investment in the Southern Ontario Region. It is in this changing climate that the status quo of scaled industry and privatized markets must be interrogated towards a future that is both sustainable and equitable.

Notes

1 The Future Is Electric (Government of Ontario, 2023), https://www.youtube.com/watch?v=W72eiLn12k0.

2-6 rep., Driving Prosperity: The Future of Ontario's Automotive Sector (Government of Ontario, February 14, 2019), https://www.ontario.ca/page/driving-prosperity-future-ontarios-automotive-sector.

7 See Emma McIntosh, "Everything You Need to Know about the Push to Mine Ontario's Ring of Fire," The Narwhal, August 2, 2023, https://thenarwhal.ca/ontario-ring-of-fire-explainer/.

8 Premier Ford used this language during his swearing-in speech in Mid-2022. Various provincial plans, including Ontario's critical mineral strategy, use the terms "unlocking" and "potential" to make claims of future promise and prosperity; however, as McIntosh points out in the article above, many of these speculations have not been proven.

9 Extractionism has long persisted as a governing ideology in the Canadian economy, a persisting legacy of settler colonialism that continues to negate Indigenous livelihoods and sovereignty. As Coulthard and Simpson describe in *Grounded Normativity* (2016), the displacement of the Indigenous body from Native land is necessitated by settler colonial objectives to extract wealth from stolen resources. Nowhere is this better seen than in the process of mining the northern 'Ring of Fire,' which not only depletes the land but places financial investment in extraction over Indigenous communities that have suffered through structural crises, such as boil water advisories and systemic poverty, for decades. Where land and resources are central to Indigenous ways of life, they are viewed by the current electromobility plan as mere "assets."

10-11 rep., Driving Prosperity (Government of Ontario, 2019).

12 David Harvey, "Neoliberalism as Creative Destruction," The Annals of the American Academy of Political and Social Science 610, no. 1 (2007): 21–44.

13 "Archived - a Plan for Fair Workplaces and Better Jobs (Bill 148)," Government of Ontario, July 5, 2017, https://www.ontario.ca/page/plan-fair-workplaces-and-better-jobs-bill-148.

14 "Making Ontario Open for Business Act (Bill 47)," Government of Ontario, November 19, 2018, https://www.ontario.ca/laws/statute/s18014.

15-16 rep., Driving Prosperity (Government of Ontario, 2019).

17 Tegan Hill and Matthew Mitchell, "Hill and Mitchell: Stellantis, Volkswagen — Corporate Welfare Is Back ...," Ottawa Citizen, May 30, 2023, https://ottawacitizen.com/opinion/columnists/hill-and-mitchell-stellantis-volkswagon-the-corporate-welfare-bums-are-back-in-business.

18-21 Government of Ontario, The Future is Electric: Phase 1.

22 Sheila Watt-Cloutier, "Citizens of the World," in *The Right to Be Cold: One Woman's Fight to Protect the Arctic and Save the Planet from Climate Change* (Minneapolis, MN: University of Minnesota Press, 2018), 286–316.

23 Government of Ontario, The Future is Electric: Phase 2, 27.

24-25 The Future is Electric: Phase 1.
26 The Future is Electric: Phase 2.

Ford's historic River Rouge Plant in Dearborne, Michigan received many environmental investments at the turn of the century. Today, electric trucks are assembled on site. / Photo by Author

2.0 Methodological Overview & Notes on Site Selection

This study comprises both visual and written works, combining critical literature and observation with diagrams and drawings that represent the perspective I developed over the course of my fieldwork. Focusing on liminality, this investigation is centered on the transitory function of marginal spaces on the periphery of the factory, within a broader context of the current period of transition that the sector is currently undergoing. The following section will first briefly outline the methodological tools used in my written essays before providing a more in-depth explanation of the visual methods used throughout this study. Through a detailed discussion of representational methods and the rationale for each, I hope to provide a starting point for other students or practitioners studying similar sites or utilizing drawing as a form of descriptive or critical inquiry. I will conclude with the parameters I established for the selection of my key case studies, providing a rationale for each site.

Written & Observational Methods

The written portion of this study is composed of secondary source research, a discourse and narrative analysis, and thick description.[1] Discourse analysis investigated both policy, as well as the public interface of this policy—seen in the form of a public service announcement. Both of these mediums were reviewed and divided into key sections; the language, implications, and contradictions were subsequently analyzed. For the thick description, I relied on my observations of lived and perceived space, as defined by Henri Lefebvre.[2] While some archival materials were referenced—such as fire-insurance plans, historical photographs, maps, and architectural drawings—the majority of conceived space was investigated through the reconstruction of buildings or objects through drawing. This is described in greater detail below. On the ground, fieldwork often entailed many laps around the factory perimeters, stopping at key entrances or points of activity to observe the flow of traffic or key objects that played a role in mediating between the factory and its inhabitants. Various observations were grouped into main conditions that informed each drawing that accompanied the case studies.

Drawing as Inquiry

Drawing and representational methods were used as key methods of inquiry throughout the three case studies. While these visual media may be seen as supplementary to their written counterparts, the process of creating each drawing requires a thorough examination of photographs, maps, and spatial data. The reconstruction of buildings in CAD is a sort of reverse engineering, requiring the researcher to break the building into sections and dimensions, and in doing so, develop a better understanding of the spatial layout conceived by the original architect or designer. Drawing, in itself, is a form of abstraction—meaning that the information depicted in each drawing encompasses only a selected layer of reality. This aspect—whether it be the depiction of land use, a certain scene observed at a factory, or a reconstruction of a key object—must be clearly read from the drawing or diagram and support a broader argument made in the written body of work.

As such, the type of drawing is a determining factor of the information conveyed. This study utilizes mainly figure-ground drawings and axonometric reconstructions. The two-dimensional figure grounds are primarily used to show one layer of information or to compare this layer to others. For instance, the size of the factory in comparison to other buildings can be read alongside their uses and the configuration of a rail network. Figure-ground diagrams are also effective in visualizing the open or unoccupied potentials of liminal spaces. Three-dimensional methods are closer to what is perceived in reality and can be constructed in either perspective or axonometric views. While perspective views are comparative to what is perceived by a camera or human eye, it also establishes a clear visual hierarchy, prioritizing what is closer to the reader. Alternatively, axonometric projections depict the subject in a more consistent manner and can be used to evaluate the form of a building or object.

The representational workflow changes depending on the type of drawing, but it often begins with a base file of the city, comprising building footprints and the street outline. From this point, buildings can be color-coded or rendered in more detail from photographs or software such as Google Earth. Three-dimensional objects can be captured from the CAD viewport at various lens lengths and perspectives. These captures are finally brought into Adobe Illustrator to be formatted for clarity and visual consistency.

Scalar Definitions

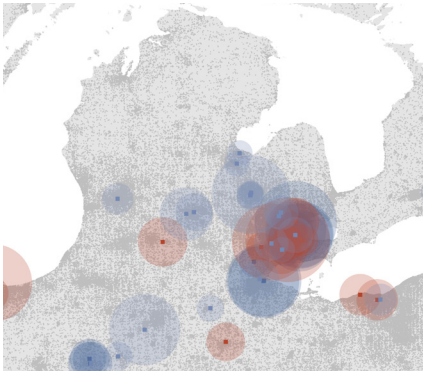
The investigation of multiple scales was a key decision that shaped the course of this study. Often, practitioners observe the built environment from a single scale or perspective. For instance, in Hatuka & Ben-Joseph's definitions of industrial urbanism, the delineation of industrial morphologies is derived from figure-ground drawings at two municipal scales; however, other dimensions—such as the more qualitative aspects or the human experience of buildings or neighborhoods—are not considered.[3] By examining multiple scales throughout each case study, different dimensions and aspects of each factory site represent different perspectives of an observed phenomenon. One deployment of this strategy is seen in the multiple depictions of trucking jurisdiction in the second case study, where parts of the factory are shown, as configured for the movement of goods, and are compared to a larger-scale figure-ground drawing that shows the major routes of the truck.

The scales employed in this study range from a larger regional scale—depicting multiple states, hundreds of cities, and a territory inhabited by millions of people—to the scale of the body. At the largest scale, regional and municipal scales are utilized to provide context and evaluate the regional applications for this study by identifying urban areas with similar conditions in the Great Lakes Region. At the scale of the city, key flows, clusters, and the relationship of industry can be perceived from a high-level view alongside relationships to key infrastructure and zoning. These representations are completed using Geographical Information Systems (GIS) software, drawing on various open data sources.

In representing the urban megafactory, four main scales are employed: the first two depict the whole factory and its context, and the latter two select parts of the structure and its surrounding spaces for closer examination. The factory itself is larger than typical buildings. As such, the peripheral context shows up to a squared kilometer of the urban context. The whole factory is depicted in both figure-grounds, comparing its footprint and context to other factories, as well as in scale axonometrics.

The partial representation of the factory is depicted at the scale of most larger buildings or complexes, as well as at the direct scale of the human. These scales are utilized to show specific conditions or objects that may be perceived around the factory perimeter.

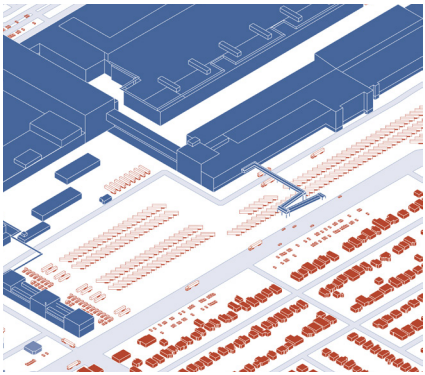
F2.01 Operational Scales: Applications



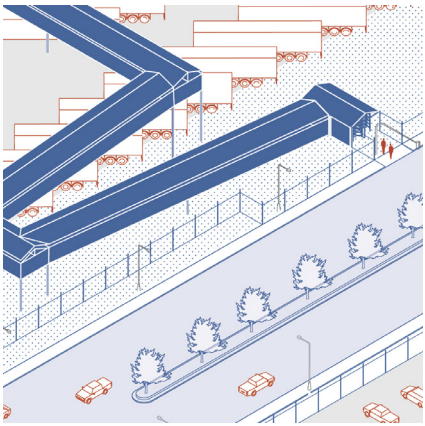
1:2,500,000 - Regional Scale (Figure 4.01)

1:250,000 - Municipal Scale (Figure 2.02)

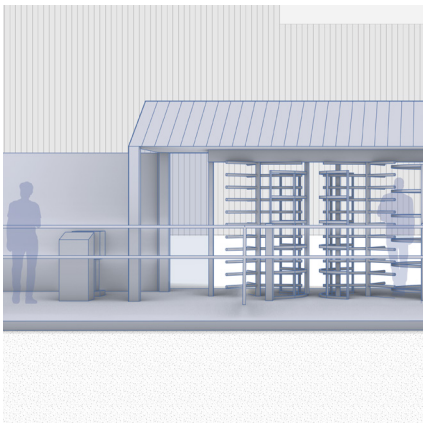
1:10,000 - Partial Municipal Scale (Figure 3.05)



1:5,000 - Immediate Urban Context (Figure 3.06)



1:1,000 - Larger Structures (Figure 3.07)



1:50 - Scale of the Body / Lived Perspective (Figure 3.08)

Morpho-Typological Definitions & Site Selection Criteria

Over the course of this study, the architectural distinction between various typologies and morphologies plays a key role in classifying factories. While architects may be critiqued for their tendencies to focus on object-oriented forms, one way that they may create active, systemic change through this means is by leveraging similar typological forms.[4]

Conventionally, typology can be used to categorize buildings by use, form, ornament, or other classifying features, while morphology usually pertains to more formal elements, such as layout or appearance. In this study, typology is used to refer specifically to the building of the megafactory, and morphology is used to refer to the urban context and its configuration. Typological variables include the factory's operational status (dead or alive) and use—whether assembling vehicles or producing auxiliary parts such as engines or trims— as well as formal features of factories—such as their configuration, appearance, or shared building elements. It is especially important to consider both in conjunction given the utilitarian nature of the factory: form follows function in the most literal sense.

In terms of morphology, this project considers the relationship between the factory/industry and the rest of the city, leveraging the three morphologies outlined by Hatuka & Ben-Joseph.[5] The most common morphology defined is that of autonomous industry—seen in the office parks of most large urban centers. This morphology is separated from the rest of the urban fabric and is usually located or bordered by highways or other sizeable industrial land uses, such as airports.[6] In the case of Windsor, later autonomous industrial parks and factories were built following the Second World War and during the Canadian manufacturing boom of the Auto Pact (1965-2001). For the purposes of this study, these sites were not chosen, as they may be harder to integrate with the existing urban fabric and are less unique to the municipality.

Parallel morphologies are the main focus of the study. Characterized by a stark border between industry and other land uses, parallel industrial corridors present a break in the city fabric.[7] This configuration can be found throughout Windsor and can be traced back to the emergence of pre-war industry. At this point, industrial areas depended on the presence of rail infrastructure and were often initiated by large companies, which formed narrow townships spanning from the waterfront to the hinterland. These historical municipalities were later annexed by the City of Windsor; however, their industrial purpose still serves the contemporary city. This morphology has been selected for its evident association with the city's industrial history, as well as its potential to form a more integrated relationship with the city.

The last morphology defined by the authors is an integrated industry—mixing land uses and various city projects with industrial buildings.[8] This morphology is yet to be found in the City of Windsor, but future design projects may convert parallel sites explored below into integrated parts of the urban fabric. Greater integration of industrial spaces may decrease the city's dependency on automobiles by locating commercial and residential uses within reach of places of industrial work.

The parallel factories selected all emerged during the first half of the twentieth century, with one factory completely dismantled, one in partial operation, and one in full operation. Beyond its own liminal spaces—which form the basis of investigation—each is situated in its own respective, but related, industrial corridor. The first case study, the Maxwell-Chrysler factory, was selected on the basis of its location within the heart of the city. Located in proximity to a number of land uses, the smaller-scale industrial corridor showed evidence of persisting industrial spaces, as well as a number of converted and re-used spaces. The second case study, the current Chrysler assembly factory, is the only site that has been optimized for the assembly of hybrid and electric vehicles. As the city's largest employer and the country's largest factory, this factory was studied from the perspective of the worker. Finally, the third case study observed was Ford's Windsor engine factory. Only partially functional, the site was selected on the basis of its close proximity to a business development area and residential neighborhood known as 'Ford City'. It is important to note that these are not the only factories located in parallel industrial morphologies; however, these three cases presented the largest variety in peripheral land uses and the widest array of spatial conditions for analysis. While this study does not focus on autonomous morphologies or office parks, the methodologies and analytical tools above may also be applied when observing these factories.

Notes

1 For a more detailed overview of literature referenced throughout this study, see *Section 1.2—Industrial Urbanism*

2 Henri Lefebvre and Donald Nicholson-Smith, *The Production of Space* (Oxford, OX, UK: Blackwell, 2017).

3 Tali Hatuka and Eran Ben-Joseph, "Industrial Urbanism: Typologies, Concepts and Prospects." *Built Environment* (1978-) 43, no. 1 (2017): 10–24.

4 See *Extrastatecraft* (2014). Where Keller Easterling speaks of latent potentials in infrastructural space, potentials also reside in the re-defining of a typology—which may be applied or "multiplied" across similar spaces or architectures.

5-8 Hatuka & Ben-Joseph, "Industrial Urbanism."

C1 Case Study No. 1
McDougall Industrial Corridor

C2 Case Study No. 2
Walkerville Industrial Corridor

C3 Case Study No. 3
Ford City Industrial Corridor

- ● 01 Ford Windsor Assembly Plant 1904-54
- ● 02 Maxwell-Chrysler Plant 1916-83
- ○ 03 GM Windsor Transmission 1920-2010
- ○ 04 Ford Windsor Engine Plant 1923-
- ● 05 Stellantis Chrysler Assembly 1928-
- ○ 06 Ford Windsor Casting 1934-2007
- ○ 07 GM Trim Plant 1965-96
- ● 08 Pilette Road Plant 1975-2003
- ○ 09 Ford Essex Engine 1981-

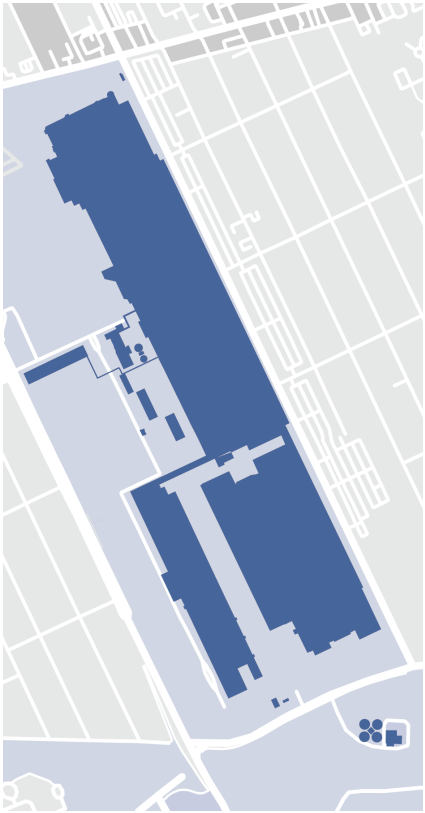
F2.02 Municipal Context & Industrial Zones

Current Factory Footprints
Current Industrial Buildings
Industrial Zones
Historical Factory Footprints
Case Study Areas

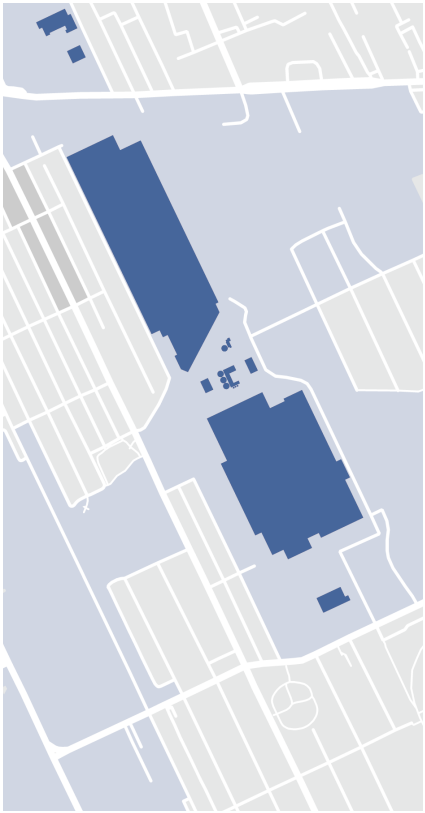
Main Truck Routes
Road Network
Auxiliary Factory
Assembly Factory

0 1000m

F2.03 Morphological Index



Stellantis-Chrysler Assembly Plant Parallel

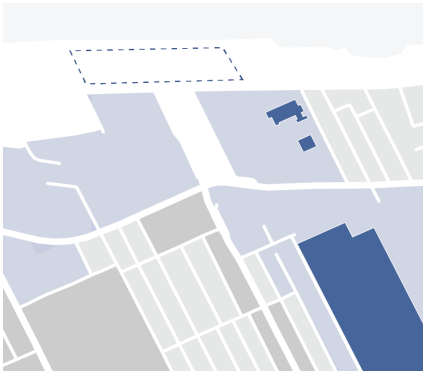


Ford Windsor Engine Plant Parallel

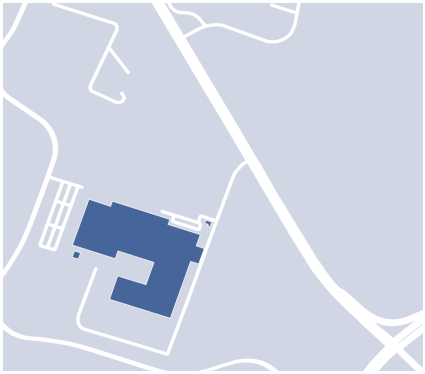
Maxwell-Chrysler Plant Parallel

Pilette Road Plant Autonomous

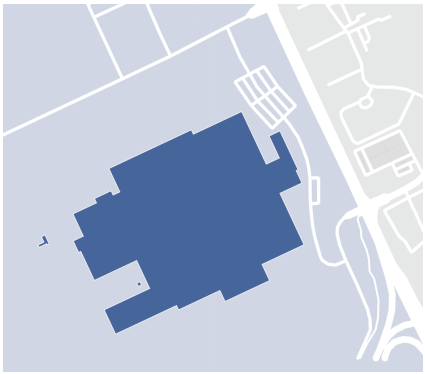
Industrial Land Use Commercial Land Use Residential Land Use



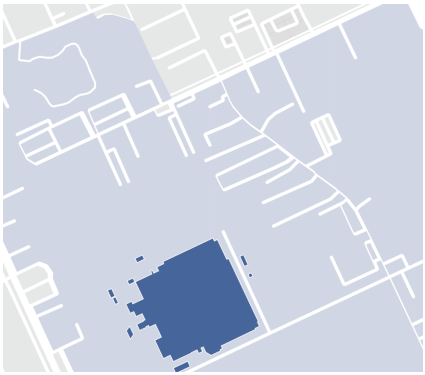
Ford Windsor Assembly Plant Parallel



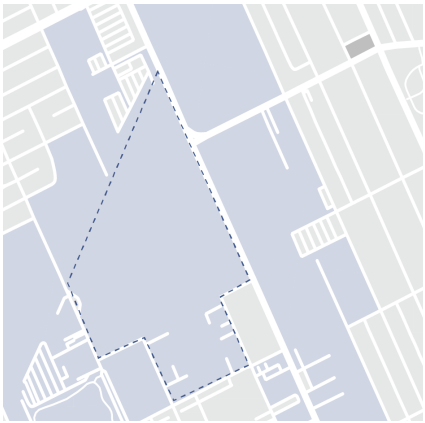
Ford Windsor Aluminum Plant Autonomous



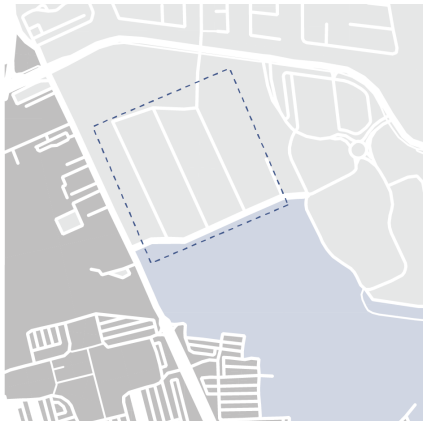
Ford Essex Engine Plant Autonomous



Ford Windsor Casting Plant Autonomous

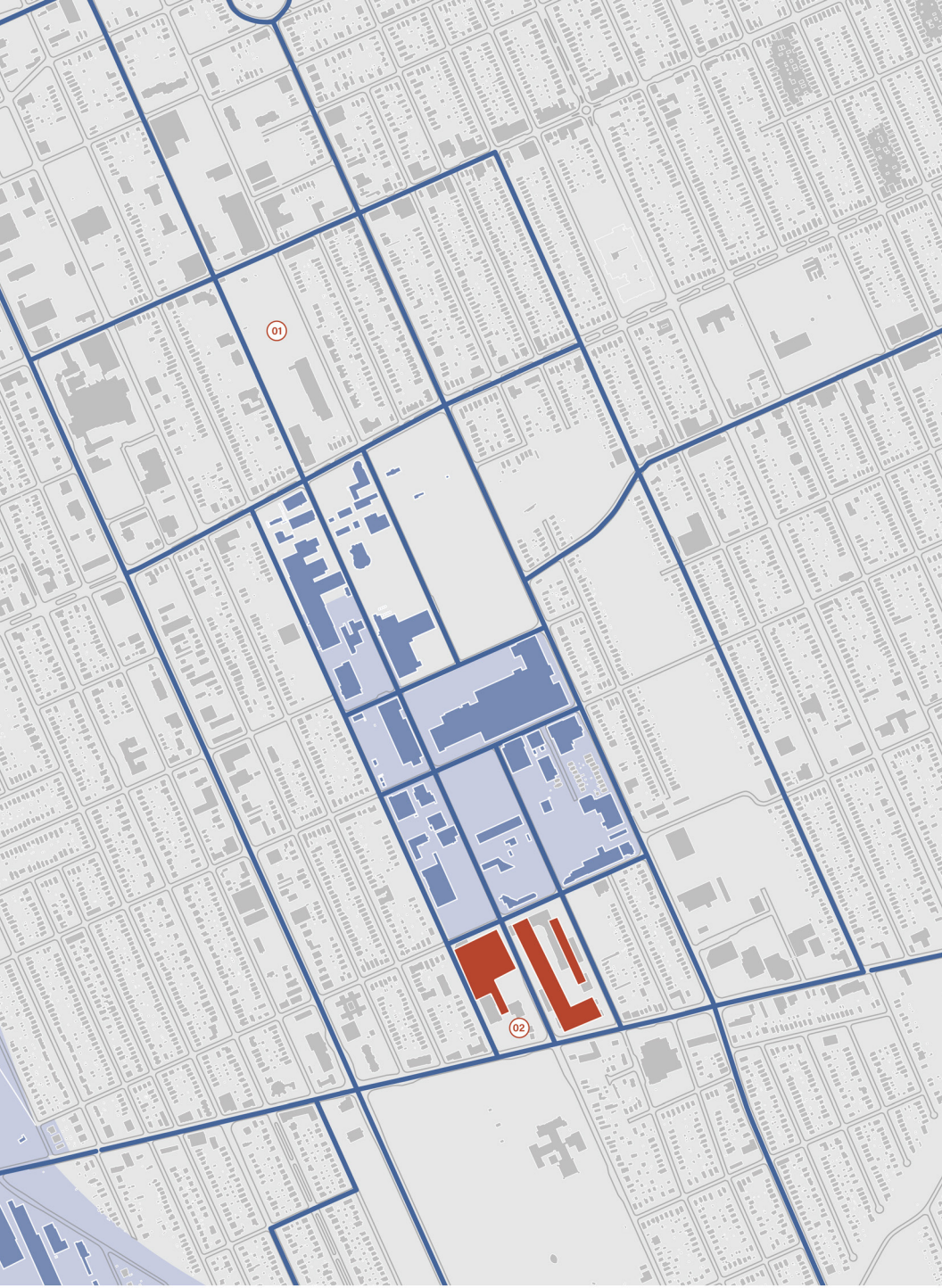


GM Windsor Transmission Parallel



GM Trim Plant Autonomous

Case Studies



Current Factory Footprints
Current Industrial Buildings
Industrial Zones
Historical Factory Footprints
Other Building Footrpints

01 Wigle Park & James P. Dunn Public School
02 Current Shopping Plaza
Main Truck Routes
Road Network

0 250m

3.1 Industrial Interlude: Instances of Productive Reuse in the McDougall Corridor

Today, the birthplace of Chrysler's Canadian operations comprises two shopping plazas and a vast asphalt landscape of parking lots. No trace of its history remains at the site itself; however, a neighbouring industrial cluster alludes to the plant's former existence. Beginning at factory site, the McDougall Street Corridor runs north, intersecting various commercial and industrial zones towards the downtown core and riverfront—and ending at the civic heart of the city. The following section will describe a number of conditions identified in a brief site visit to the McDougall Street corridor, drawing upon these initial observations to evaluate future uses for similar industrial arrangements. My observations find that larger-scale industrial footprints are either repurposed for mass consumption, as in the case of the current shopping plaza, or abandoned—while finer-grain manufacturing plants are able to reclaim smaller-scale industrial assets and make more efficient use of the site.

The Shopping Plaza: An Autocentric Afterlife

Established following a merger with automotive company Maxwell-Chalmers, the first Canadian Chrysler plant operated for more than half a century—first manufacturing on the east side of McDougall Street before expanding to the west side. The legacy of the automobile persists in the car-centered typology of the shopping plaza—an amalgamation of copy-and-paste franchises, from an assortment of drive-through chain restaurants to a FreshCo and a Dollarama. These businesses cater to the car-driving individual, allowing them to enjoy the pleasures of standardized consumption from the comfort of their vehicle. Bordered by Tecumseh Road on the south, a main arterial road characterized by its nearly exclusive commercial presence, the lot has been converted into prime commercial real estate. A large portion of the site is dedicated to parking, with an abundance of unoccupied space. Despite this lack of activity, a portion of the void has been claimed by an informal garden center, advertising hanging flower arrangements for $4.99 a basket. The empty parking lot across the street possesses a similar setup—with a single

F3.01 McDougall Industrial Corridor - Figure-Ground

individual selling locally-grown melons and tomatoes out of their minivan. While these vernacular uses appear makeshift in nature, they are the only spaces in the plaza where human interaction can be observed.

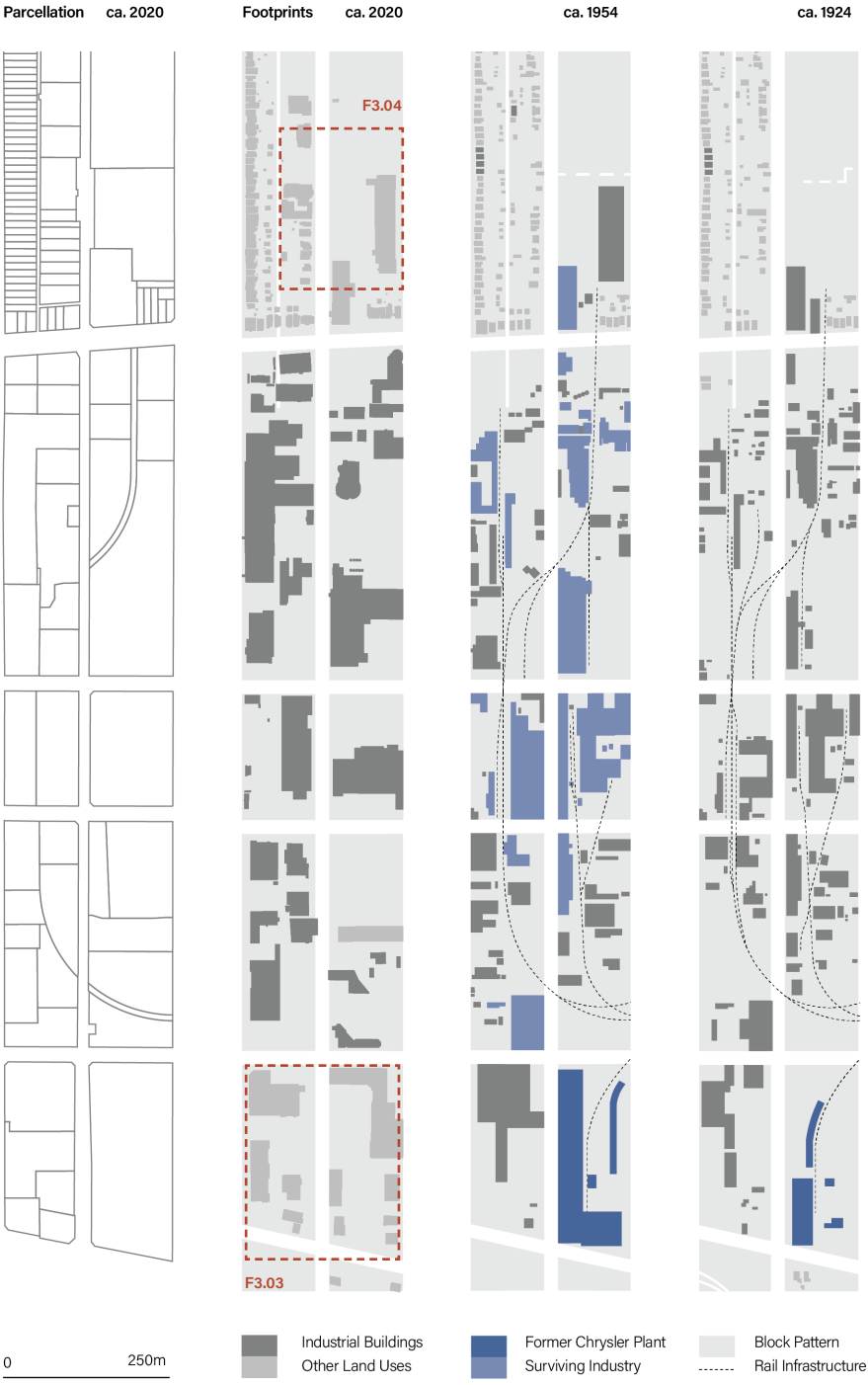
Changing Industrial Parcellation

North of the original Maxwell-Chrysler plant is a short stretch of industrial buildings. Some sites are abandoned—overgrown with weeds over years of vacancy—while others appear to be in full operation. The original Chrysler plant is among many factories that have lived and died along this short corridor—the evidence of many factories still remains in their foundations or partial demolition. Where many of these plants were formerly supplied by rail, they now depend on trucks for the movement of their products. The presence of rail infrastructure dictated not only the growth of industry during the nineteenth and twentieth centuries but also the division of land, to some extent. Rail also bisected some industrial lots, providing direct loading and transportation for larger companies, such as Chrysler. While the presence of industry in this area has persisted, the spatial arrangement of industrial sites has changed considerably. Upon consulting fire insurance plans from 1924 and 1954, and comparing the former fabric with contemporary conditions, it is evident that industrial buildings grain has changed significantly over the past fifty years. Where each block consisted of various smaller buildings in the 1920s, many of these buildings were consolidated towards the middle of the century and even more so in the present condition.[1]

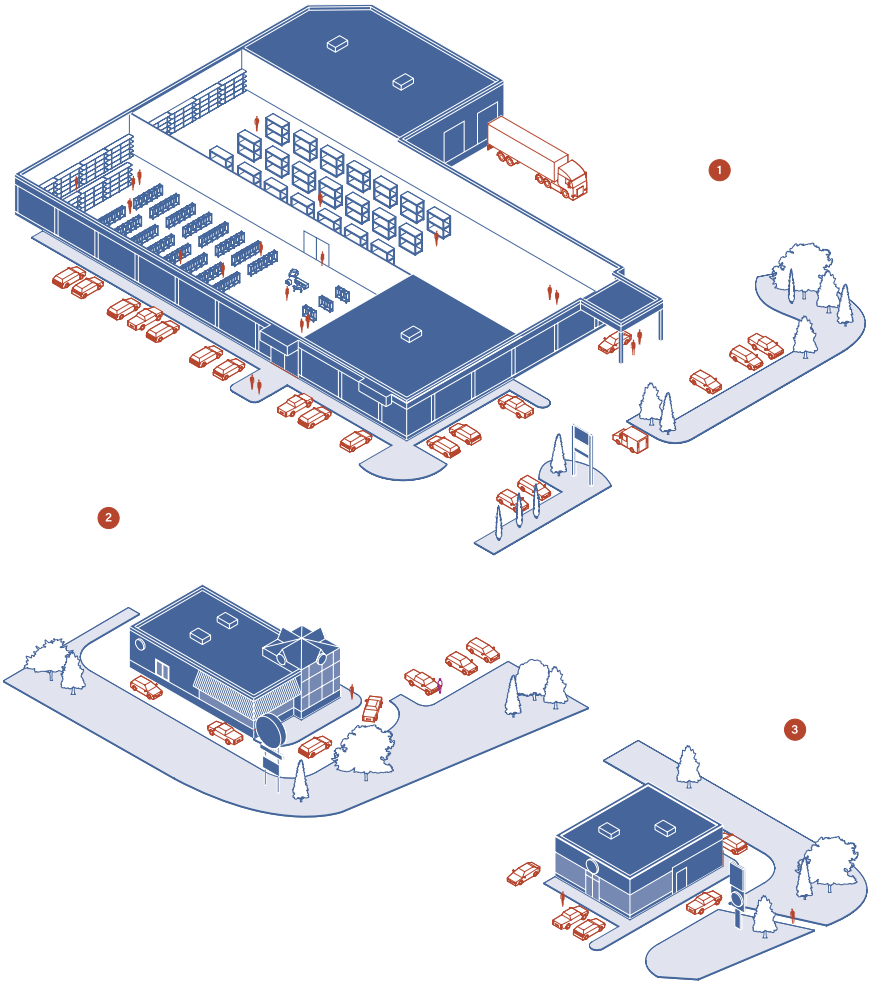
The Post-Industrial Conversion: Reclaiming Community Space

Beyond these industrial spaces, yet another instance of reuse can be found. Unlike the shopping plaza, this project intentionally preserves the cultural heritage of its industrial predecessor. Completed in 2021, the James L. Dunn Public School occupies a former playing card factory and is named after a Black Windsorite who helped desegregate the public education system in the 19th century.[2] The conversion restored the building's industrial aesthetic, leveraging its original elements—such as large windows and long corridors—for natural light in classrooms and hallways. While active reuse is a key aspect of the design, the decision to maintain these elements recenters the historic identity of both industry and community. The adjacent park and school grounds bridge the residential buildings on either side of the corridor where they are separated by the imposition of industry to the south. While Wigle Park was not a former industrial site, it presents the potential transformative scenario of returning industrial areas to the public realm as green space,

F3.02 Parcellation Diagram & Historical Figure-Grounds


Parcellation ca. 2020
Footprints ca. 2020
ca. 1954
ca. 1924
F3.04
F3.03
0
250m
Industrial Buildings
Other Land Uses
Former Chrysler Plant
Surviving Industry
Block Pattern
Rail Infrastructure

F3.03 Shopping Plaza Typologies



01 The Goodwill Donation & Employment Center acts as a community hub within the larger plaza. Near the entrance is a bulletin board with postings for job opportunities. The center's slogan reads "changing lives and communities through the power of work."

02 Burger King is by far the busiest restaurant in the plaza, with a larger complex and longer drive-through.

03 A newly opened Starbucks hosts a work meeting, as well as a considerable number of both dine-in and drive-through patrons.

as is common with many post-industrial conversions and brownfield redevelopments. Since the city's launch of the brownfield community improvement plans in 2010, it has seen a number of similar infill projects, often converting former industrial land into residential or commercial development. While economic programs provide a incentive for reuse, new developments may avoid such sites due to unforeseen complications that may arise during remediation processes.[3]

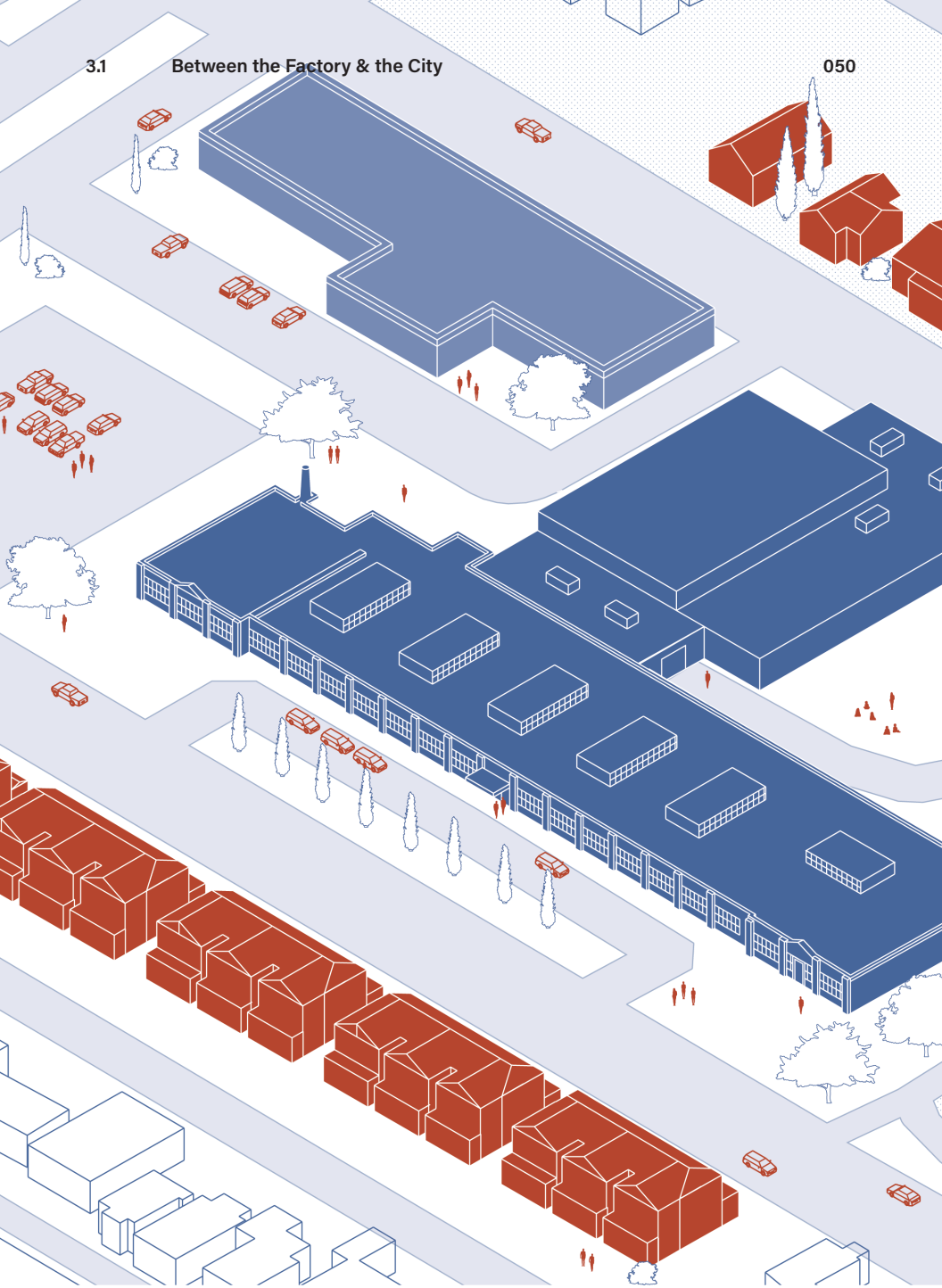
Notes

1 In Baird & Myers' 1978 articulation of *Vacant Lottery*, the pair describe a growing pattern of consolidating lots, resulting in the creation of larger land parcels, more vacant space, and fewer pedestrian amenities. While this theory primarily addressed residential development, its speculations on the assembly of lots and propositions for more efficient land through infill use may also be considered for industrial cases such as McDougall, where vacant space around large buildings is either used for parking or void.

2 Mary Caton, "Tender Goes out for Newly Named James L. Dunn Public School," The Windsor Star, February 19, 2020, https://windsorstar.com/news/local-news/its-a-dunn-deal-tender-goes-out-for-newly-named-james-l-dunn-public-school/.

3 Many of these insights are owed to conversations with the city's policy planners, who were kind enough to meet with me and discuss the City's programs and position on brownfield remediation and industrial investment.

One of many abandoned industrial lots along McDougall Street, 2023 / Photo by Author



Converted Factory
Former Industrial Building

Street Network
Green Space & Parks

Residential &
Mixed Use

F3.04 Industrial Retrofit

0 20m

Current Factory Footprints
Current Industrial Buildings
Industrial Zones
Historical Factory Footprints
Other Building Footrpints

01 Former Chrysler Administrative Building

Truck Entrances
Employee Gates
Main Truck Routes
Road Network

0 250m

3.2 Manufacturing Interface: Megafactory at the Scale of the Body

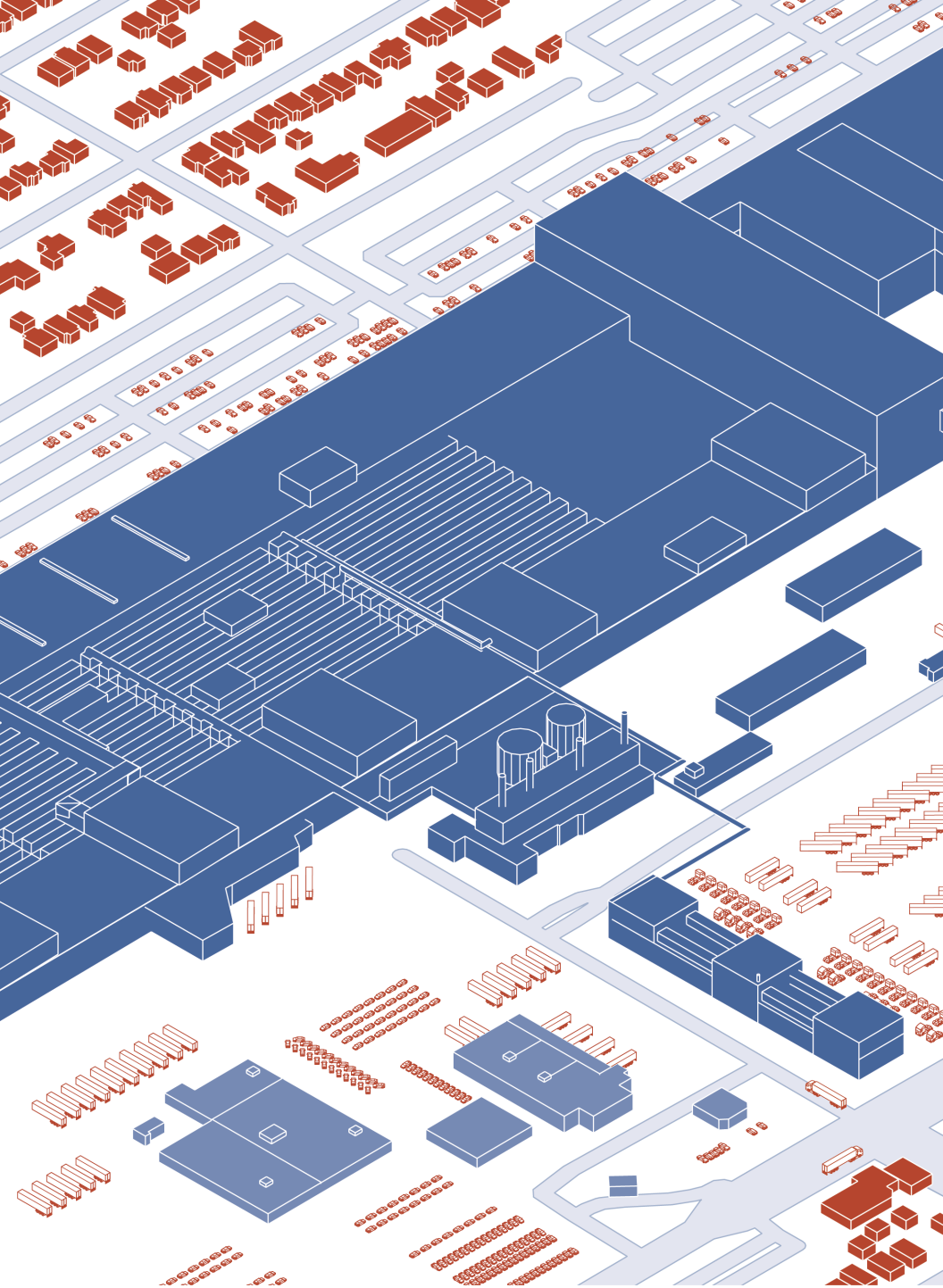
The singular Stellantis assembly plant in Windsor is the only regional automobile factory that has undergone a procedural transformation—known as re-tooling—to accommodate the production of new electric vehicles. The gargantuan walls comprise a sterile facade that looms over the surrounding landscape, obstructing all operations within. At this scale, the human body is barely perceptible, observed only from ground zero at brief interfaces along the factory facade.

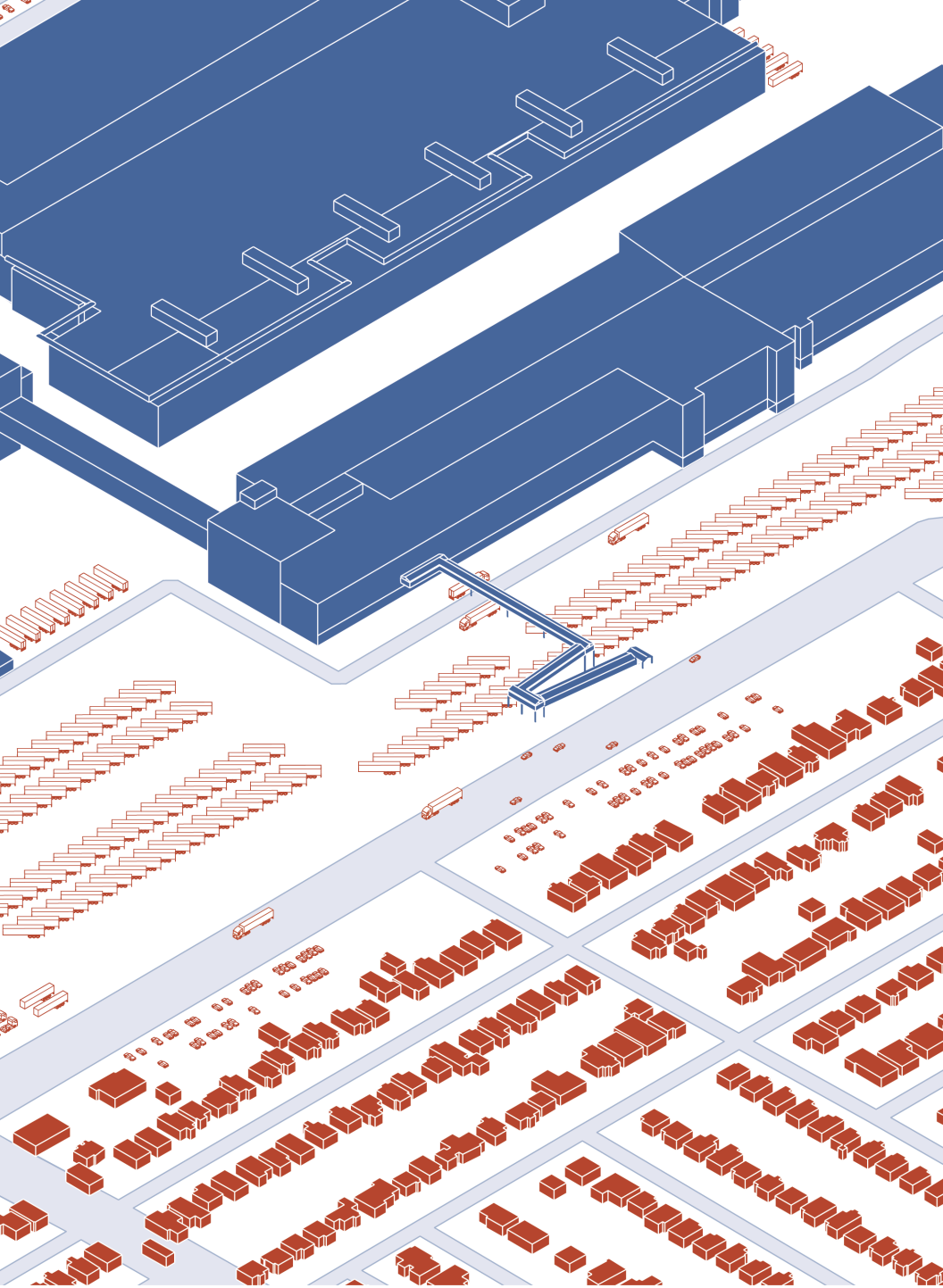
In the following section, I review manufacturing footage from within the factory, as well as observations around the border of the complex to speculate on the role of human labor in the assembly plant.[1] Through a series of brief scenes, I describe how the architecture of the factory is laid out for the efficient flow of production while the body moves around machinery that allows for the optimization of this process—filling in the gaps where automation is not yet sophisticated or profitable enough to complete the task. This can be observed in the division of labor—between automation and human workers, the spatial jurisdiction of trucks, and bodily interactions with the factory architecture at points of access or exclusion.

Gears and Cogs: New Industrial Mechanization

While the repetitive nature of the assembly line has persisted, the integration of robotics and machines have allowed for the acceleration of production beyond human ability. This is the case within the Stellantis factory, as the majority of the automobile has been welded and assembled by robotic arms for nearly half a century.[2] Today, four arms work on each body, making new welds every few seconds.[3] Automation is used throughout production—from repeated installations of pre-fabricated parts to painting and fitting windshields. While former factories often failed due to decreasing demands of a single, mass-produced model, automation accommodates a new flexible form of production in which machines can be re-trained for the efficient production of multiple models. The complete removal of human labor can

F3.05 Stellantis-Chrysler Assembly Plant - Figure-Ground


Megafactory Building
Industrial & Service Buildings
Street Network
Residential & Commercial Buildings



F3.06 Trucking Entrance

0 50m

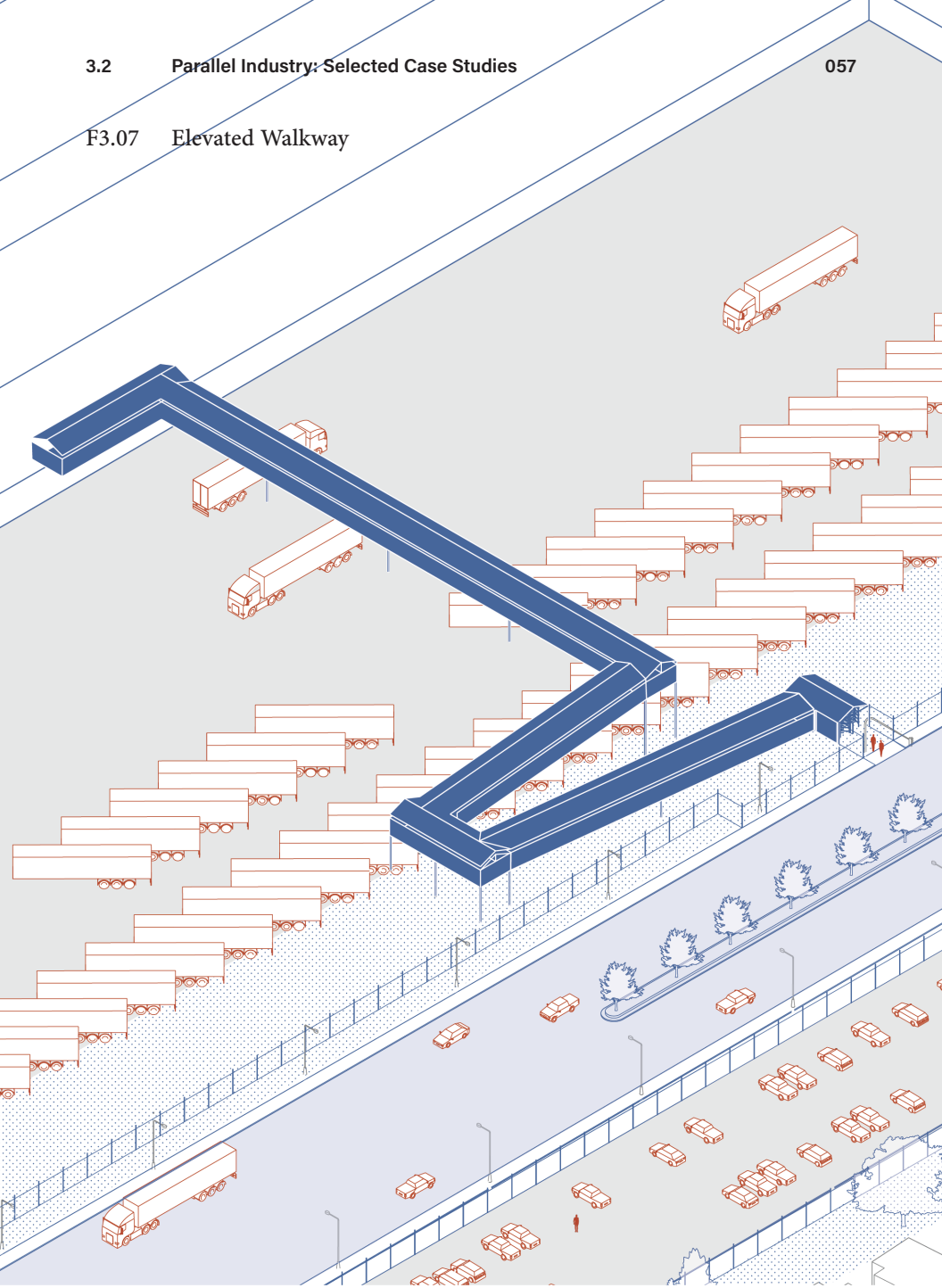
be observed at many points within the factory, both in vertical and horizontal segregation.[4] Welding areas, as mentioned above, occupy designated zones within the factory, and comprise whole sections of the assembly process. Within human assembly zones, a centralized two-tier grid separates the lower conveyor belt from a human-less upper conveyor belt, which moves finished bodies and parts to respective workstations.

Although machines have replaced former positions of human labor, the worker continues to be an essential part of the assembly line, completing details and installing parts that require complex or precise movements. The auxiliary role of human labor is necessitated in the transition to automation, shifting from that of primary production to a maintenance role, or that of inspection.[5] Despite the rapid evolution of technology, the dexterity of human hands remains uncontested for some tasks. In these positions, workers often become caretakers of machine processes, guiding the work completed by their automated counterparts.[6] Ergonomic equipment and computerized systems are integrated with the main grid, designed to measure, optimize, and inspect human work. Biometric information also guides the system, with an accordion lift raising or lowering each vehicle to match each worker's height and respective task. Human tasks along the assembly line often consist of preparing or cleaning parts to be put in place by robotic arms.

Trucking Jurisdiction: Mobility Around the Factory Perimeter

The enormous volume and productivity of the factory are not only reflected in its workforce but in the fleet of hundreds of trucks that occupy a large portion of the production grounds. Where the assembly line plays a central role in the organization within the interior of the factory, the movement of goods in, around, and out of the plant is essential to the design of its surrounding site. Along Walker Road, the plant is dominated by a staggering field of stationary trailers and tractors, with the majority of entrances along the south and west sides marked for trucking. This condition is obstructed along the east side of the factory where employee gates are located. Where employees move perpendicular to the factory, crossing the six-lane Chrysler Centre to enter the factory through a gate, trucks move parallel to the plant—occupying the space between gates and human zones. In these liminal spaces, pedestrian access is restricted, with marked zones for human mobility. In considering the placement of these gates and pedestrian zones, one outstanding example can be found on the east side of the factory—where a walkway directly connects an employee parking lot with the main factory building. The path itself is elevated above the height of a trailer, so as to not obstruct the movement of trucks alongside this part of the factory. Indeed, the factory site is so large

F3.07 Elevated Walkway

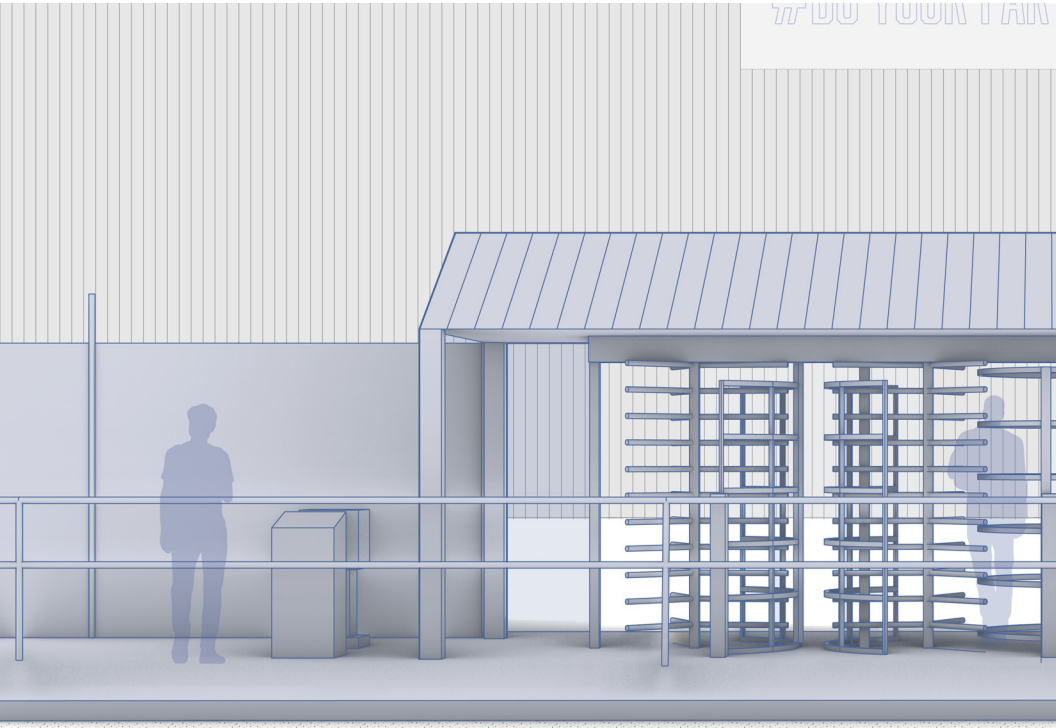


that few workers are observed walking between gates but rather drive small industrial vehicles or pickup trucks.

Beyond Productive Occupation: Field Notes & Typologies

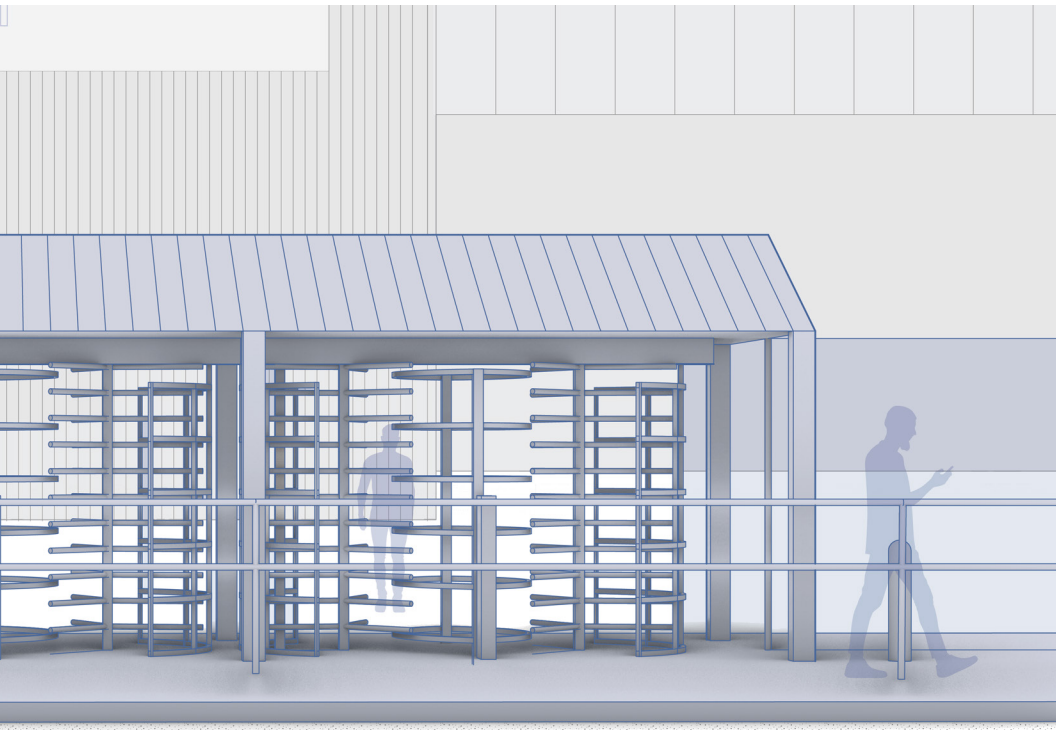
As human labor has become peripheral to the manufacturing process, worker amenities around the factory boundary also appear overlooked. Where factories were formerly designed for worker well-being, with clean air and sunlight as central aspects of labor organization–the contemporary assembly-line disregards these principles, with nearly no windows or openings around the entire factory. Rather, bright fluorescent lighting—attached to the main grid—dictates the flow of labor, with even brighter tunnels at points of inspection. Around the perimeter of the factory, designated smoking areas and haphazard break stations are located adjacent to factory gates or doors. Surrounded by chain link and bound by sheet metal, these stations present

F3.08 Turnstile Entrance at Main Employee Gate



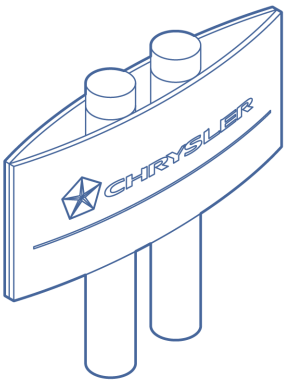
the only evidence of human activity throughout the working day, as laborers socialize on isolated picnic tables during quick breaks.

At 3:00 p.m. sharp, the shift change occurs. Minutes prior to the changing hour, hundreds of workers line up behind the gated turnstiles. As the second changes, they flood onto the street. Workers walk out together and in groups—chatting and embracing as they head to their vehicles. At each of the gates, groups of three boys in baseball uniforms collect spare change for a fundraiser, their chaperones lounging on lawn chairs as the children converse with the workers. Five minutes after the change, outgoing traffic along the street is packed, comprising a typical rush-hour scene. And yet, by 3:10, traffic has thinned once again. By this time, some workers begin to arrive for the second shift, with traffic trickling back into the parking lots. Over the course of half an hour, Chrysler Center has gone from an abandoned street to a bustling corridor—and back again.



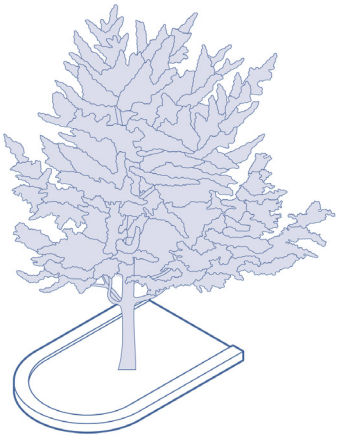
F3.09 Objects of Interest

Interface



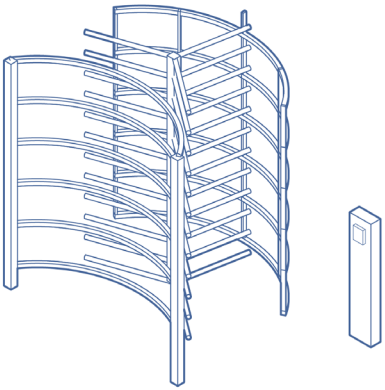
Plant Signage

Present at key entrances around the plant, formal signs display the company logo at official entrances along Walker Road. At around two meters high, the signage can be read from the scale of the body but is also visible to truck drivers and passersby.



Roadside Planter

Greenery is sparse along the industrial artery that is Walker Road; however, approaching the stretch bordering the Windsor Assembly plant, trees adorn the street in planted islands. This small addition aestheticizes the front condition of the factory, visually upholding the plant's declared commitments to sustainability.

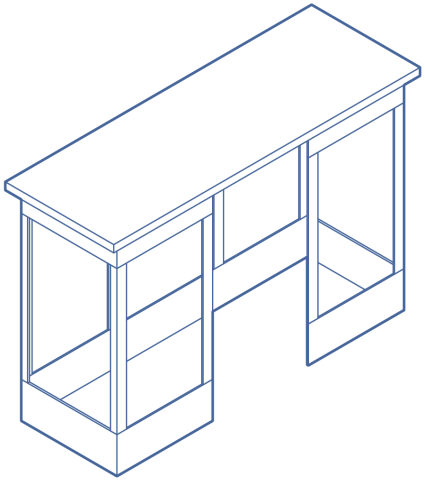


Turnstile & Key Scanner

Allowing only one employee in at a time, the turnstile is an effective measure of regulating the flow of workers entering and exiting the facility. Between two and four turnstiles are housed under small shelters, creating a darkened threshold between the sidewalk and the factory grounds.

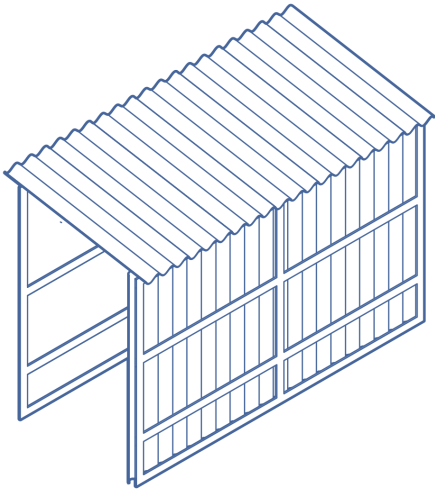
(See Figure 3.08 for context)

Amenity



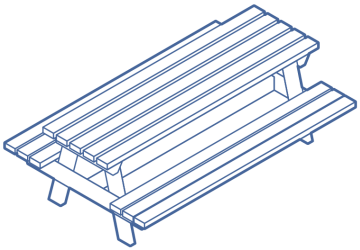
Formal Smoking Station

A couple of freestanding smoking stations are present adjacent to factory entrances. These booths are simply constructed, allowing sunlight through large windows. Seating is available inside or adjacent.



Informal Smoking Station

More commonly distributed around the factory perimeter, makeshift smoking stations are roughly cut out of the same corrugated metal as the factory facade. Many may be found in a row—either attached to the factory itself or to the surrounding chain link barrier. Picnic tables are often placed under or beside the shelter.



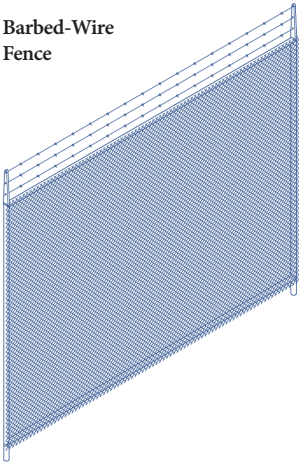
Picnic Table

Providing the sole furniture around the factory grounds, picnic tables are often occupied by a couple of workers at a time. Where there is an absence of seating, workers have been observed to sit on crates as an alternative. Beyond the borders of the assembly factory, picnic tables are a common motif in industrial areas, often found scattered outside small factories or parking lots.

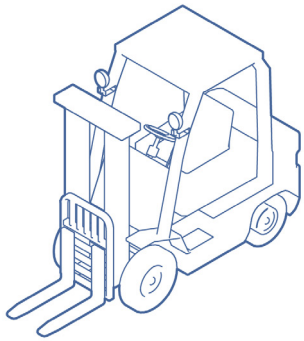
F3.09 Objects of Interest

Exclusion & Mobility

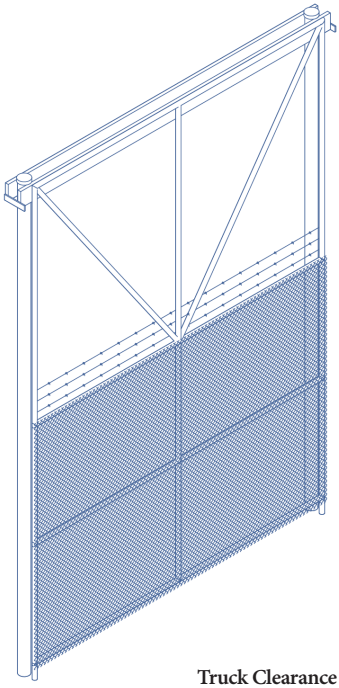
Barbed-Wire Fence



Jitney (Forklift)



Utility Car



Truck Clearance

The perimeter of the factory grounds is demarcated by barbed-wire fence, only breaking at designated gates or entrances. Where there are higher posts attached to the fence, this typically indicates the presence of a current or former truck entrance. This securitization of active manufacturing sites can be found in other industrial areas as well.

Utility cars and forklifts are also present around the massive site. While some are used to move freight, most employees drive empty cars to move from one end of large lots to the other quickly. No pedestrians are observed on the site.

Notes

1 Some of my descriptions on human labour are also derived from a short factory tour at the Ford Rouge River assembly plant, during which I observed the assembly of a different vehicle. Despite their differences in production, the layout and methods of both the Stellantis Assembly Plant and the Rouge Plant are similar.

2 Jim Benjaminson , R. Perry Zavitz , and Bill Watson, "Windsor, Ontario Chrysler Plants," Allpar Forums, November 16, 2020, https://www.allpar.com/threads/windsor-ontario-chrysler-plants.229400/.

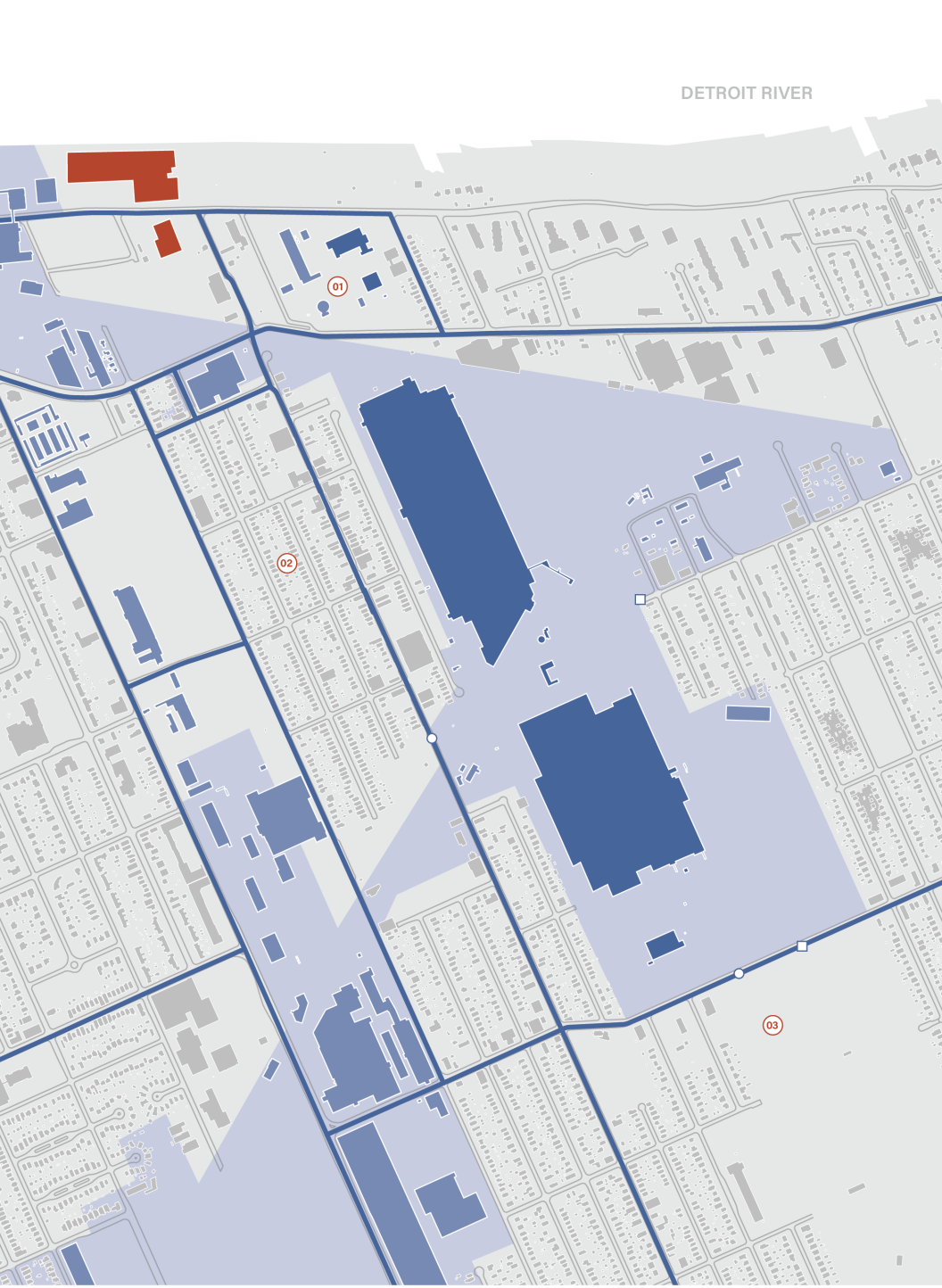
3 *Windsor Assembly Plant Manufacturing Footage* (Stellantis Media North America, 2016).

4 In Machine Landscapes, Jesse LeCavalier writes on "human exclusion zones"—productive areas in which solely automated labor is allowed.

5 In a short essay on working and living in Masdar City—a new smart urban enclave—a graduate student reflects on the role of the "Man with Brush," who dusts the solar panels off, allowing them to function properly.

6 This state of labor can be observed across technical ecosystems—especially within the logistics sector. Both Jesse LeCavalier and Clare Lyster have written on the role of human pickers in Amazon warehouses, describing a synthesis between (and alienation created) Keva robots—which aid the picking process—and human sorting.

The current main entrance is shown vacant in November 2021 / Dan Janisse, Windsor Star.



Current Factory Footprints
Current Industrial Buildings
Industrial Zones
Historical Factory Footprints
Other Building Footprints

Truck Entrances
Employee Gates
Main Truck Routes
Road Network
01 Ford Historic Power Plant

0 250m

02 Ford City BIA
03 Ford Test Track Park

3.3 Renewing the Void: Placemaking and Revitalization in Ford's Industrial Corridor

It's nearly thirty degrees as I walk along toward the Windsor Engine Factory. As the sun beats down on the pavement, I seek relief in a grove of trees along Drouillard Road. It is in this parkette that I am met with a circle of benches surrounding a life-sized bronze sculpture of three factory welders.

Placed across from the engine factory in 2001, *Generations* depicts the sons of auto workers continuing the family trade in the original Ford assembly factory. As its name and place imply, the sculpture places the legacy of the company at the heart of the contemporary neighborhood's identity.[1] The artwork foregrounds a large mural titled *End of the Line*—alluding to both the finished product of the assembly line, as well as the factory's closure in 1954. While there are numerous public artworks located around the Ford City neighborhood, the bronze welders appear to be a central image. The figures appear multiple times throughout the recent plan for the community's revitalization—accompanying a section on the public realm, as well as the plan's cover and final page.[2] Indeed, the sculpture depicts a transitional moment in Windsor's automotive history, where Ford's departure at the peak of operations resulted in mass decline over the following decades. Though the figures reflect the message of the Ontario Government's proclaimed "industrial heritage," it is uncertain that Ford's transmission-based presence in Windsor will survive the transition.[3]

Ford's Windsor Engine Plant is one of the company's two remaining plants in the city. The oldest operational plant to date, the factory is closely situated to the company's historic headquarters and the former site of its first assembly plant. Where many of Windsor's current and former factories occupy a typical steel box typology, the Windsor Engine plant has a distinctive appearance. Parts of the original architecture are still visible, most notably the pitched roofs and masonry entrance on the west of the plant.[4] North of the plant, the original powerhouse, designed by Ford's industrial architect, Albert Kahn, also remains. The plant's underutilization and future uncertainty are a result of its main product: combustion engines. With no declared plans for electrification, the state of the engine plant remains precarious.

F3.10 Ford Windsor Engine Plant - Figure-Ground

The following section will provide a brief historical description of the area's development, discussing observations around the perimeter of the Ford Engine Factory and industrial corridor. Central to this description is the role played by physical barriers and greenery in the concealment of both industrial activities and underutilized space resulting from the gradual dismantling of the factory.

A Brief Historical Sketch of Ford City

The most striking condition surrounding the factory is the rapid urbanization and development of mixed commercial and residential buildings. The impromptu employee sprawl—located adjacent to the industrial lands—has experienced both rapid growth and decline over the past century, both of which may be attributed to the presence (and subsequent absence) of the Ford Assembly plant. In their Centennial account of the Windsor, Price and Kulisek juxtapose the explosive, organic growth of Ford City with the careful planning of the neighboring town, Walkerville.[5] Where the concept of formal company towns is largely predicated on the initiative and control of the company, the case of Ford City was far more vernacular, with workers building homes to create a small, but significant, municipality over the course of a few decades.

Aerial photographs showing the presence and absence of industrial activity; 2000, 2021 / County of Essex Geocortex

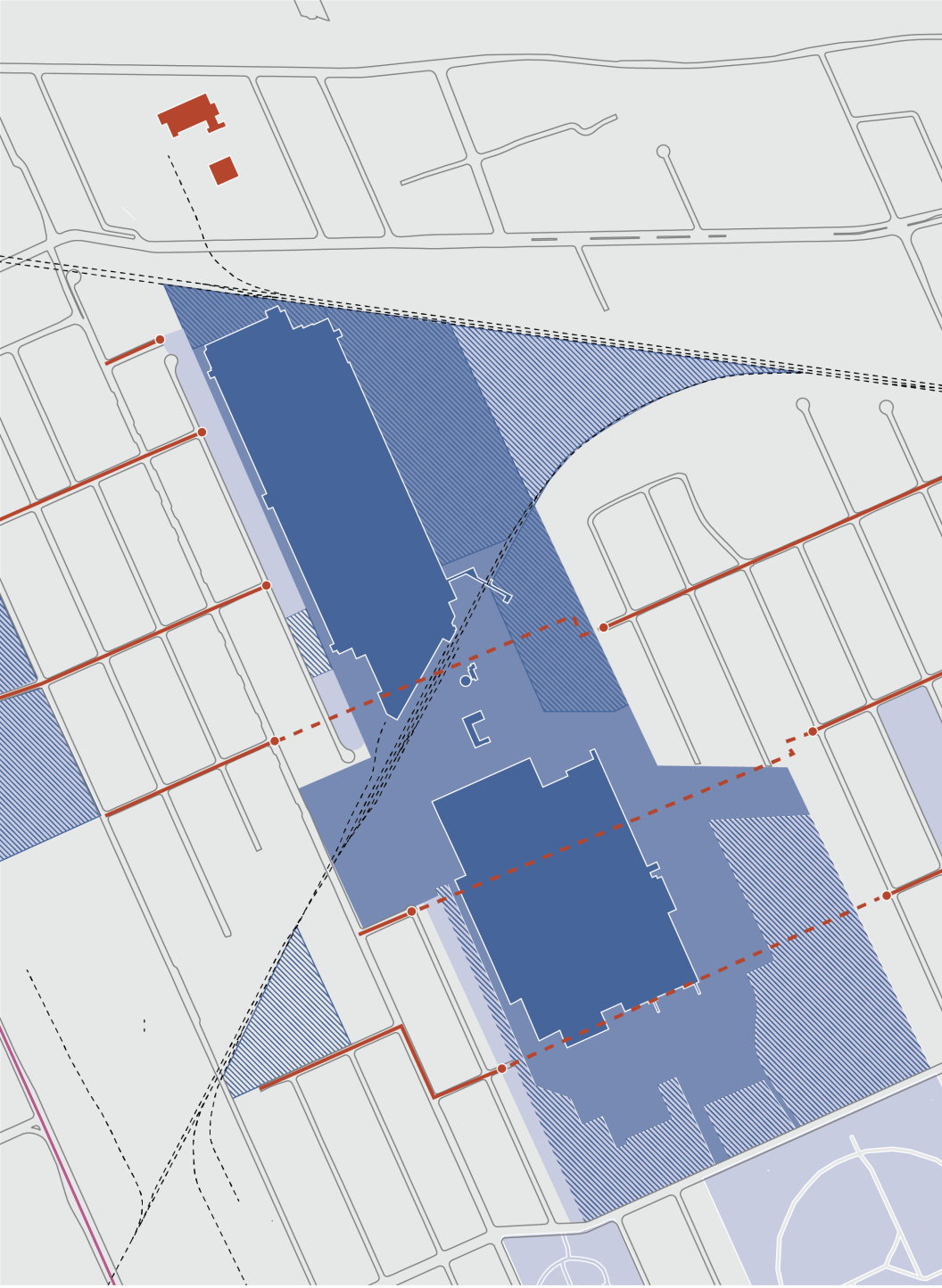
Just as the factory played a key role in the development of the town, so its death in 1954 brought a wave of decline. With the migration of former workers to the suburbs, much of the area was abandoned. Only five years after the departure of the company, the city was selected as one of the three areas for an urban renewal study.[6] While this study did not bring about an immense change to the area, more recent revitalization projects and plans have attempted to restore the neighborhood to its former prosperity, centering the role of the automobile sector and its history in the process. The construction of this industrial identity can be seen on the ground in the aforementioned public artwork, as well as in future plans for industrial redevelopment.

Breaking & Making the Grid: Land Use Boundaries and the Built Fabric

Beyond its cultural significance, the current Ford factory is situated in the center of the community, breaking the residential block pattern, which continues on either side of the factory perimeter. Established prior to the surrounding residential fabric, the factory was the driving force of development in this Industrial corridor. With half of the factory currently abandoned, much of the site remains unproductive and underutilized, creating a discontinuity on either side of the surrounding street network. The perpendicular road network of Metcalfe, Ontario, and Franklin Street all come to an abrupt stop at either end of the site, while upper streets span only a few blocks between the Walker and Ford industrial corridors.[7]

Constructing the Greenscreen: Strategic Planting Around the Factory Perimeter

Despite the proximity of industry and the surrounding houses, the plant is hardly visible from the surrounding streets. Not only is the perimeter defined by various fences overgrown with climbing vines, but the view is further shrouded by a thick canopy of trees. Landscaping is also used to hide the factory form, with sloped turfgrass hills establishing a topological difference between the street view and the elevated manufacturing grounds.[8] The gradual deconstructing of the plant can also be read from aerial photographs showing a former foundry and other factory extensions that have since been demolished. Vacant lots left behind by the dismantling of industry are common throughout Windsor. Commonly appearing as paved lots with the remnants of building foundations, or overgrown fields, they are seldom maintained. This is far from the case at the Windsor Engine Plant, where the meticulous maintenance of turfgrass voids can be seen from the perspective of Google Earth. While the lawn surrounding the plant remains part of the factory grounds, the Southern entrance leads to a public park that has been repurposed from the old Ford Test Track.


Megafactory Building
Ford Engine Lot (Paved)
Green Space & Parks
Underutilized Industrial Land
Rail Infrastructure
Projected Street Connection
End of Street (Near Factory)
Ford Power Plant
0
200m

Notes

1 "Mural Guide: Ford City, Greater Drouillard Revitalization." Windsor: City of Windsor, 2002.

2 The Ford City Community Improvement Plan (2018) was consulted for a preliminary evaluation of the factory site and its surroundings, as well as historical importance. Insights from this report are used throughout this section.

3 See *Section 1.3—Electric Society* for further elaboration on the role of automotive work in the formation of a collective identity.

4 While there were formerly six of these iconic entrances at the corners of the plant, one remains—quietly situated along Henry Ford Centre Drive.

5 Trevor Price and Larry L. Kulisek, "Portrait of Ford City." In *Windsor, 1892-1992: A Centennial Celebration: An Illustrated History.* Windsor, Ont.: Chamber Publications, 1992.

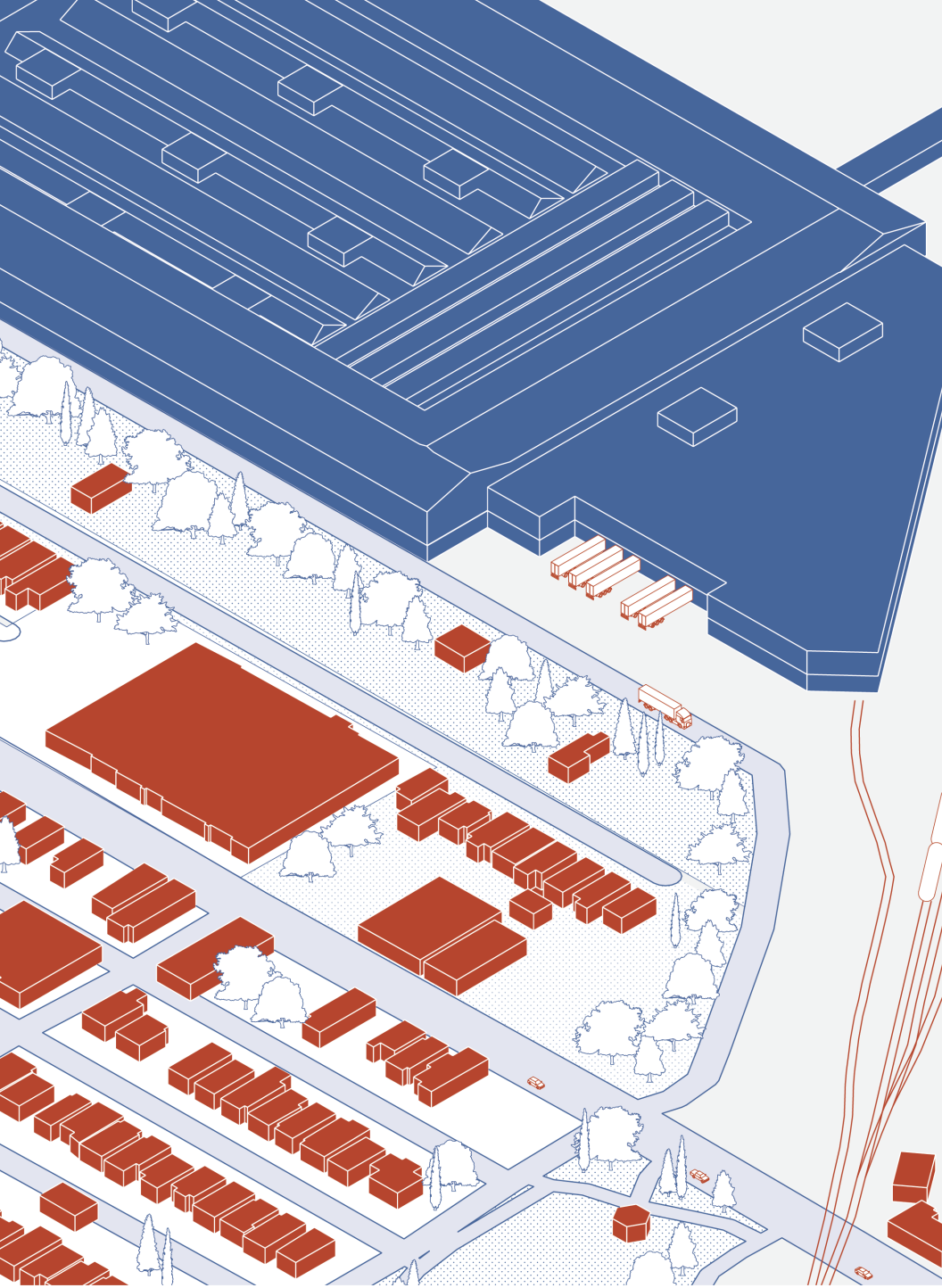
6 E.G. Faludi And Associates, "Fifteen Year Programme for the Urban Renewal of the City of Windsor and its Metropolitan Area," (1959). *SWODA: Windsor & Region Publications.* 83. https://scholar.uwindsor.ca/swoda-windsor-region/83

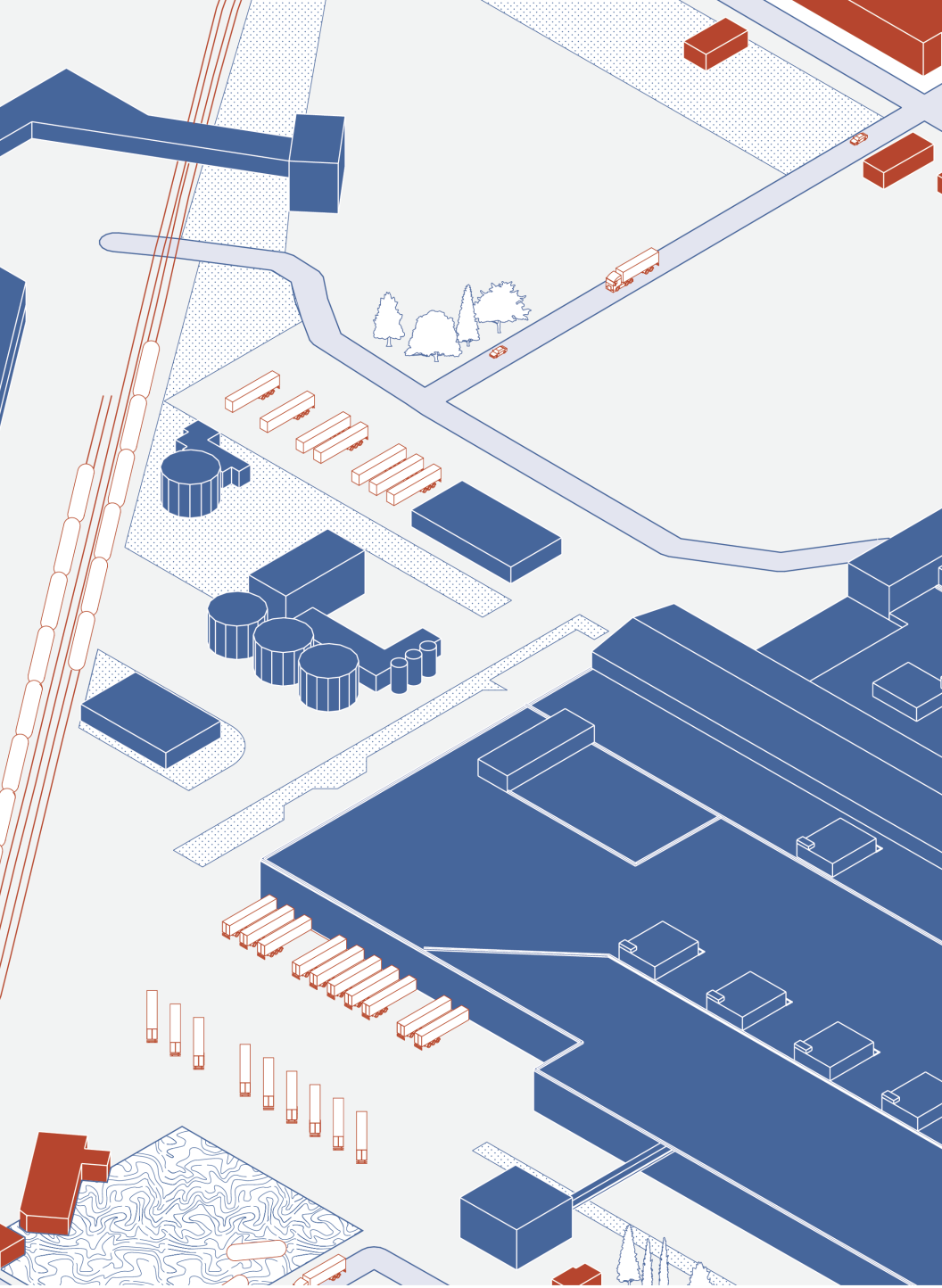
7 This "superblock" condition is further acknowledged in the Community Improvement Plan as a feature that separates Ford City from the rest of the municipality. Suggestions were included to re-divide some industrial blocks for walkability.

8 This subtle strategy also utilized along the front parts of the Stellantis Assembly Plant, facing Walker Road. Both factories use greenery to establish boundaries and improve the appearance of their properties; however, the extent to which the Ford Windsor Engine Plant employs these tactics is far greater.

Aerial photograph of undeveloped land west of Ford Windsor Engine Plant, 1941 / Windsor-Essex Development Corporation

F3.11 Discontinued Street Network & Underutilized Space


Megafactory Building
Street Network
Green Space as Buffer/Filler
Residential & Commercial Buildings
Paved Industrial Space
Rail Infrastructure



F3.12 Bisecting Railyard Condition

0 50m

4.0 Imagining Potentials: Conclusions for Future Beginnings

As the city of Windsor looks towards a future of transformation driven by new demands for electromobility and the fourth industrial revolution, existing conditions present various outcomes and possibilities for this transitional period. This concluding section will revisit key learnings from existing factory sites studied in the earlier case studies, drawing on these findings to make a case for the revival of factory voids and underutilized industrial space in the city core. Each case will begin with the largest-scale findings before addressing lessons at the scale of the building and the body. External design precedents will also be referenced to situate each megafactory site within an existing lineage of post-industrial transformations. Finally, overall conclusions will be reviewed alongside study limitations, a reflection on methodology, and further applications.

Discussion of Findings

The first case study—observing the former Maxwell-Chrysler plant in the context of the McDougall industrial corridor—provides key lessons on industrial reuse and lot size. The consolidation of industrial buildings and subsequent large gaps around these areas comprised the broadest observations from this site. Where large-scale industrial buildings are required for some operations, the division of land uses into smaller sites may be easier to redevelop and provide greater connectivity in the existing fabric. While the site of the factory itself was mainly used for parking in an auto-centric shopping mall, further along the corridor, instances of community investment and activation of public space could be observed in the strategic renewal of a formerly vacant factory alongside Wigle Park.

The James P. Dunn Public School not only preserves the industrial character and heritage of the site but integrated it into the existing community. While the retrofitting of industrial buildings has many positive implications, it is important to acknowledge the limitations of this strategy. Existing conditions—such as the size, site, and architecture—of former factories may not allow for this strategy in many scenarios where it may be more productive to demolish the existing site and build from the ground up. Additionally, these projects may have significant implications for the

surrounding city. As Dan Barasch acknowledges in the introduction to Ruin and Redemption in Architecture, efforts to transform abandoned buildings into cultural "attractions" have the potential to contribute to gentrification.[1] Where old factories may be coveted for their aesthetic, "industrial heritage" designations can raise property values and displace working-class residents.[2] High & Burrill provide the example of the Lachine Canal in Montreal: a national historic site that boasts various natural and cultural amenities but has significantly altered the lives of former industrial workers for the worse.[3]

Beyond the potential benefits and pitfalls of industrial reuse, smaller-scale improvements may also provide community investments. Where there are underutilized spaces, this case study also demonstrates how informal uses—such as streetside vendors and community gardens—have the potential to activate these voids. Providing the framework or infrastructure for these uses—such as booths or planter boxes—to continue may be a small step toward investing in active community spaces.

The second case study—describing the periphery and operations of the city's largest industrial operation—prompts further inquiry into the future industrial labor conditions and the stratification between machine and human mobility and agency in the built environment. Nearly half of the factory domain is dominated by the truck, providing a starting point for thinking about the parallel inhabitation of the space around the factory. Where truck and car parking comprises much of the site's 177 acres, Toronto's Greenwood Yard (37 acres) currently acts as public transportation vehicle storage. SvN Architects + Planners have proposed vertical stratification for this condition, envisioning mixed-use development—including industrial uses among green space, residential, office, and educational spaces—above the existing railyard.[4]

In terms of human work and occupation, growing automation and technology will change the existing dynamics of labor. Where the proliferation of Fordist labor marked the explosion of the North American middle class, Post-Fordist working conditions are often characterized by precarity and a polarization of incomes.[5] This can already be observed in the uncertainty surrounding assembly line workers at Ford's engine plants today. Highly skilled workers in both the automotive and technological sectors will continue to be in demand; however, as manufacturing becomes increasingly dominated by automation, a question of middle-range employment remains. Beyond the state of labor, the factory is not expected to thoroughly invest in worker amenities and gathering spaces around its periphery. Agreements between the union and the plant secure worker rights to objects as common as picnic tables.[6] As such, surrounding connections to the city and other public spaces become

essential in compensating for this deficit.

The final case study—observing the Ford Windsor Engine plant and its surrounding neighborhood— demonstrates the role of greenery and landscaping in obscuring voids as well as the potential for the preservation of industrial heritage as community identity. As observed, much of the voided space is planted with turfgrass or paved as an intermediary measure. In the future, this space could be redeveloped and integrated into the surrounding fabric. This factory and its context have already been identified by the city as a key site for revitalization, with recent improvements guided by a community improvement plan in 2018.[7] The public plan recognizes the isolating nature of large industrial vacancies, recommending that connections through large industrial superblocks be made to reconnect the neighborhood to the rest of the city.[8] This strategy accompanies other efforts to preserve the heritage of the original company town, as well as investments in the public realm and pedestrian-oriented improvements. While the original assembly plant and power plant along the riverside are not included in the plan, they remain an important part of Ford's heritage nonetheless and could be potential sites of redevelopment or preservation.

Some aspects may be adopted from Ford's Rouge River factory across the Detroit River. The factory itself underwent significant environmental investments throughout the beginning of the twenty-first century, including a green roof that both mitigates stormwater and insulates the functioning plant, as well as various ecological improvements to enhance the natural ecosystem.[9] The site is also located near the Henry Ford Museum, which celebrates the industrial history of the company and its surrounding area while also housing additional educational institutions and archives. Although the complex has been subject to a form of Disneyfication, it remains a significant precedent for the preservation of company history and public education.

As the city of Windsor continues to expand—in both its industrial ventures and population—the case for reviving factory voids becomes more critical to the city's growth. The Stellantis battery plant is expected to attract significant regional investment, as companies are inclined to locate key supply chain nodes within close proximity to this facility.[10] Recent infrastructural investment in the Gordie Howe Bridge and Rt. Hon. Herb Gray Parkway is also expected to draw additional industry.[11] Much of this industrial expansion is limited to an area on the periphery of the city known as the Sandwich South region. Annexed in 2002 from the Town of Tecumseh, Sandwich South is not exclusively zoned for industrial uses but also includes mixed-use and residential development, as well as plans for a new mega-hospital.[12] These significant projections for the city's hinterlands have been critiqued by groups

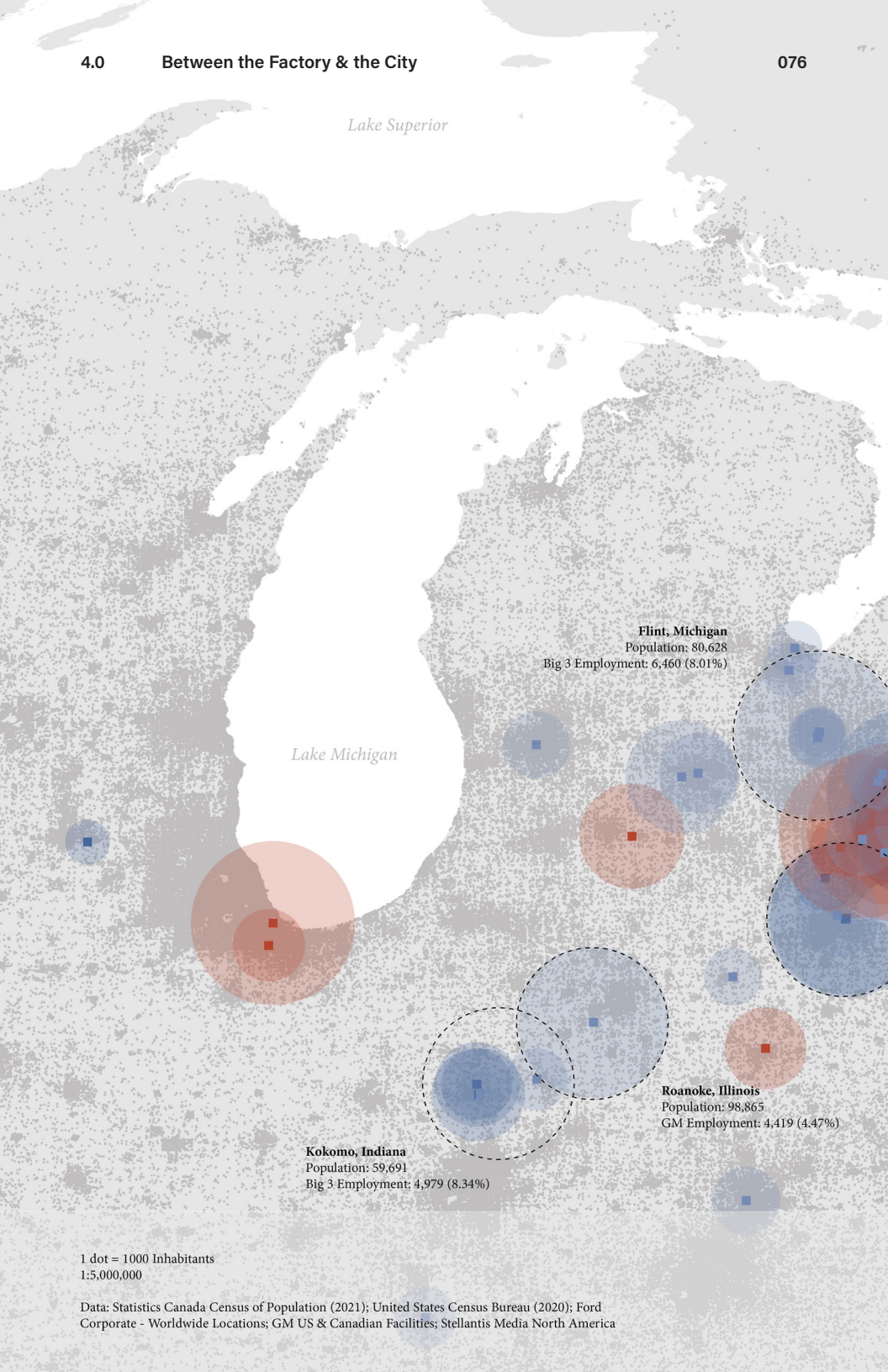
advocating for additional investment in the existing core, where Windsor's poorest wards are concentrated—often near industrial sites.[13] Rather than isolating these investments from the rest of the city, locating them within vacant industrial sites could provide a more connected, densified, and liveable city.

Brownfield redevelopment of this scale can already be observed at the former site of the General Motors Trim factory, which converted a 60-acre site into new residential units.[14] While remediation of past industrial sites may present considerable obstacles for developers today, future market-driven demands may deem this process necessary with decreasing land availability. Parallel conditions identified throughout this study—such as Ford's Windsor Engine Plant and the former General Motors Transmission Plant—provide optimal sites for redevelopment. With a combined 149 acres, these two sites possess ample space for the integration of the existing industrial ecosystem and other mixed uses.

Study Limitations & Further Applications

In combining multiple modes of inquiry, this study attempted to provide a more holistic view of the current transitions occurring around megafactory sites in Windsor. This proved to be an unconventional means of approaching an existing problem, firmly established by provincial policy and the shifting industry.[15] As the methodology engaged a range of resources, the depth of investigation through each medium was limited, attempting to provide a broader overview of relevant aspects, rather than a nuanced picture from each lens. For instance, representational techniques derived from approximate reconstruction and observation were privileged over other forms of more technical drawing, as the time required to locate and acquire such resources would have proved unfeasible. This level of detail is reflective of the broader observational techniques and descriptions employed throughout this research.

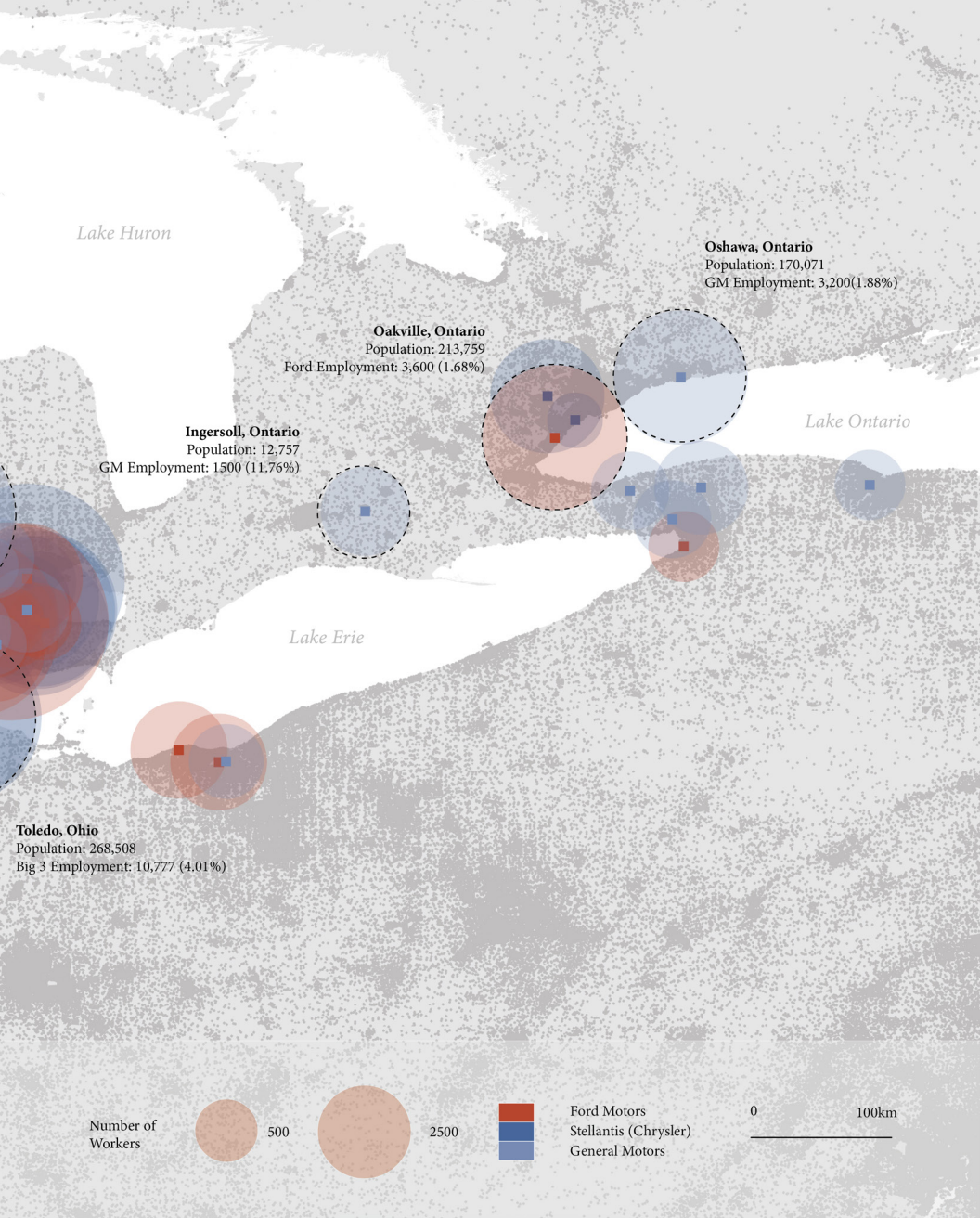
While Windsor remains the unique birthplace of the Canadian automotive industry, possessing a unique geographical position across from the American Motor City, it is only one of the many cities in the Great Lakes Region experiencing the current transition from Fordist production and urbanity to the new era of electromobility. This study may provide insights and identify potentials for accommodating growth in manufacturing towns across Southern Ontario, as well as in similar urban centers across the border. Although the automotive industry is the focus of this analysis, similar techniques can be applied to study relationships between any industrial site and its urban context. This subject of study is especially relevant in the



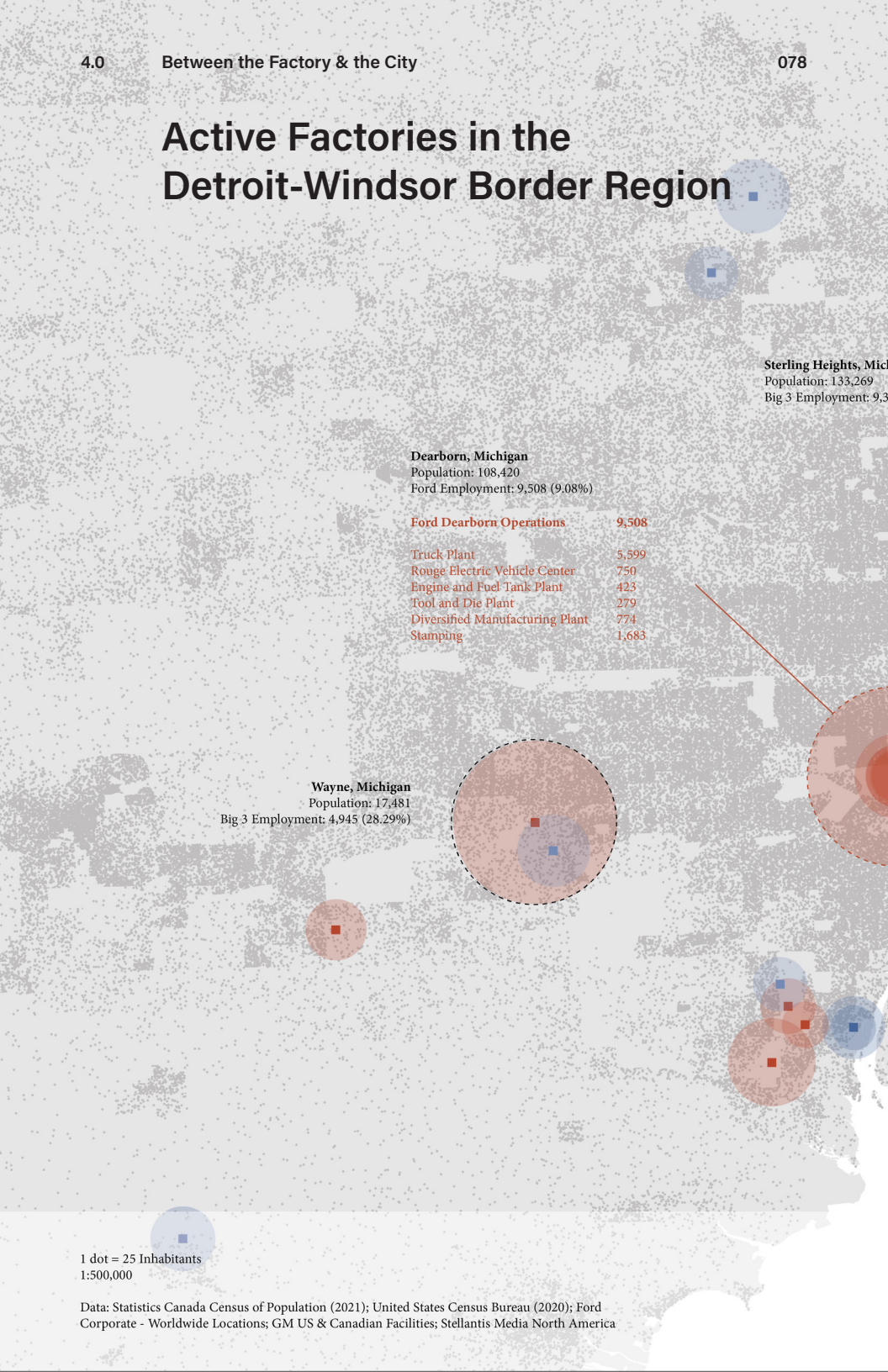
1 dot = 1000 Inhabitants
1:5,000,000

Data: Statistics Canada Census of Population (2021); United States Census Bureau (2020); Ford Corporate - Worldwide Locations; GM US & Canadian Facilities; Stellantis Media North America

Active Auto Sector Cities in the Great Lakes Megaregion

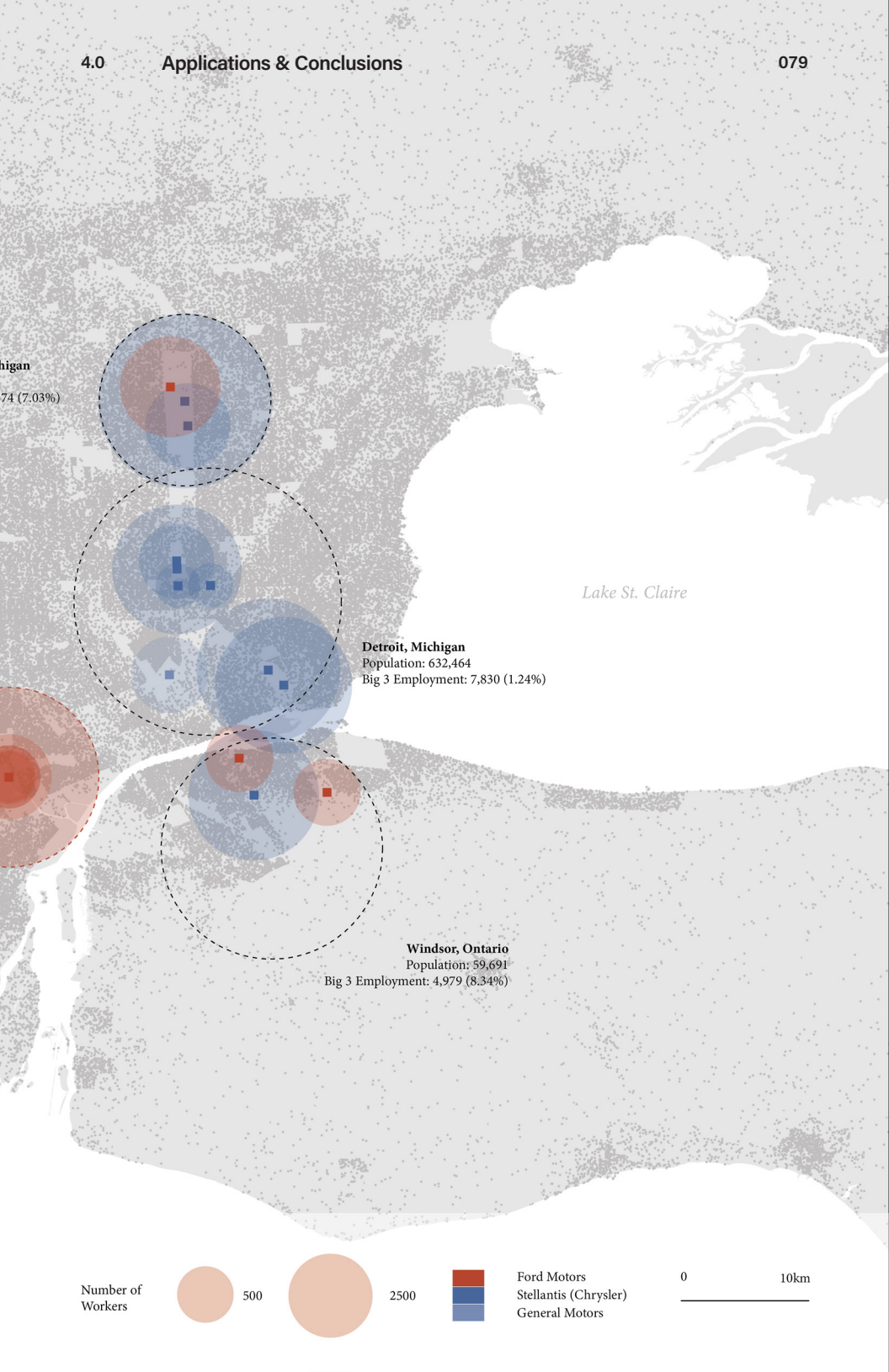


Active Factories in the Detroit-Windsor Border Region



1 dot = 25 Inhabitants
1:500,000

Data: Statistics Canada Census of Population (2021); United States Census Bureau (2020); Ford Corporate - Worldwide Locations; GM US & Canadian Facilities; Stellantis Media North America


higan
74 (7.03%)
Lake St. Claire
Detroit, Michigan
Population: 632,464
Big 3 Employment: 7,830 (1.24%)
Windsor, Ontario
Population: 59,691
Big 3 Employment: 4,979 (8.34%)
Number of Workers
500
2500
Ford Motors
Stellantis (Chrysler)
General Motors
0
10km

transition toward enhanced automation and sustainability, as these shifts will inherently change the nature of labor and multi-scalar relationships between the worker, the factory, the industrial zone, and the broader city.[16]

Conclusion

Through a range of written and visual approaches, this study has identified and analyzed the liminal spaces of three parallel megafactory sites within the city of Windsor. Investigation began with an interrogation of existing policy, discourses, and media pertaining to the contemporary shift to electromobility, establishing these sites of production as critical catalysts of a broader provincial and national transition. Through observation and representation, various conditions of reuse, inhabitation, and void were examined at each respective factory. Where existing megafactory sites are often underutilized and physically isolated from the rest of the city, posing major discontinuities within the urban fabric, these vast spaces can be reframed as opportunities for future community investment, inclusion, and integration.

Notes

1 Dan Barasch, "Introduction," in *Ruin and Redemption in Architecture* (Berlin: Phaidon, 2019), 11.

2-3 Steven High and Fred Burrill, "Industrial Heritage as Agent of Gentrification," National Council on Public History, February 19, 2018, https://ncph.org/history-at-work/industrial-heritage-as-agent-of-gentrification/.

4 "Greenwood Yard," SvN Architects + Planners, January 27, 2022, https://svn-ap.com/research-and-strategy/greenwood-yard/.

5 Jamie Peck, "Labor, Zapped/Growth, Restored? Three Moments of Neoliberal Restructuring in the American Labor Market," *Journal of Economic Geography* 2, no. 2 (2002): 179–220.

6 "2020 Collective Agreements between Unifor, Unifor Local 444 and Stellantis/FCA/Chrysler" (Windsor, Ontario, October 19, 2020).

7 Planning and Building Department. Key Stakeholder Group, Ford City Community Improvement Plan § (2018).

8 While the plan makes recommendations to connect the Ford City neighborhood to the rest of the city by dividing existing blocks between St. Luke and Walker, the same strategy could be applied in the scenario that the Ford Windsor engine plant is re-integrated with the city fabric.

9 "Ford Rouge Center Landscape Master Plan," William McDonough + Partners, June 21, 2021, https://mcdonoughpartners.com/projects/ford-rouge-center-landscape-master-plan/.

10 Dave Waddell, "Stellantis Announces Production Plans for Windsor Assembly Plant," The Windsor Star, May 2, 2022, https://windsorstar.com/news/local-news/stellantis-announces-production-plans-for-windsor-assembly-plant.

11 "Economic Opportunities," Gordie Howe International Bridge, 2021, https://www.gordiehoweinternationalbridge.com/en/economic-opportunities#!nav-build-it-so-they-will-come-work-live-and-stay.

12 "Sandwich South Master Servicing Plan " (City of Windsor: Dillon Consulting, May 2023).

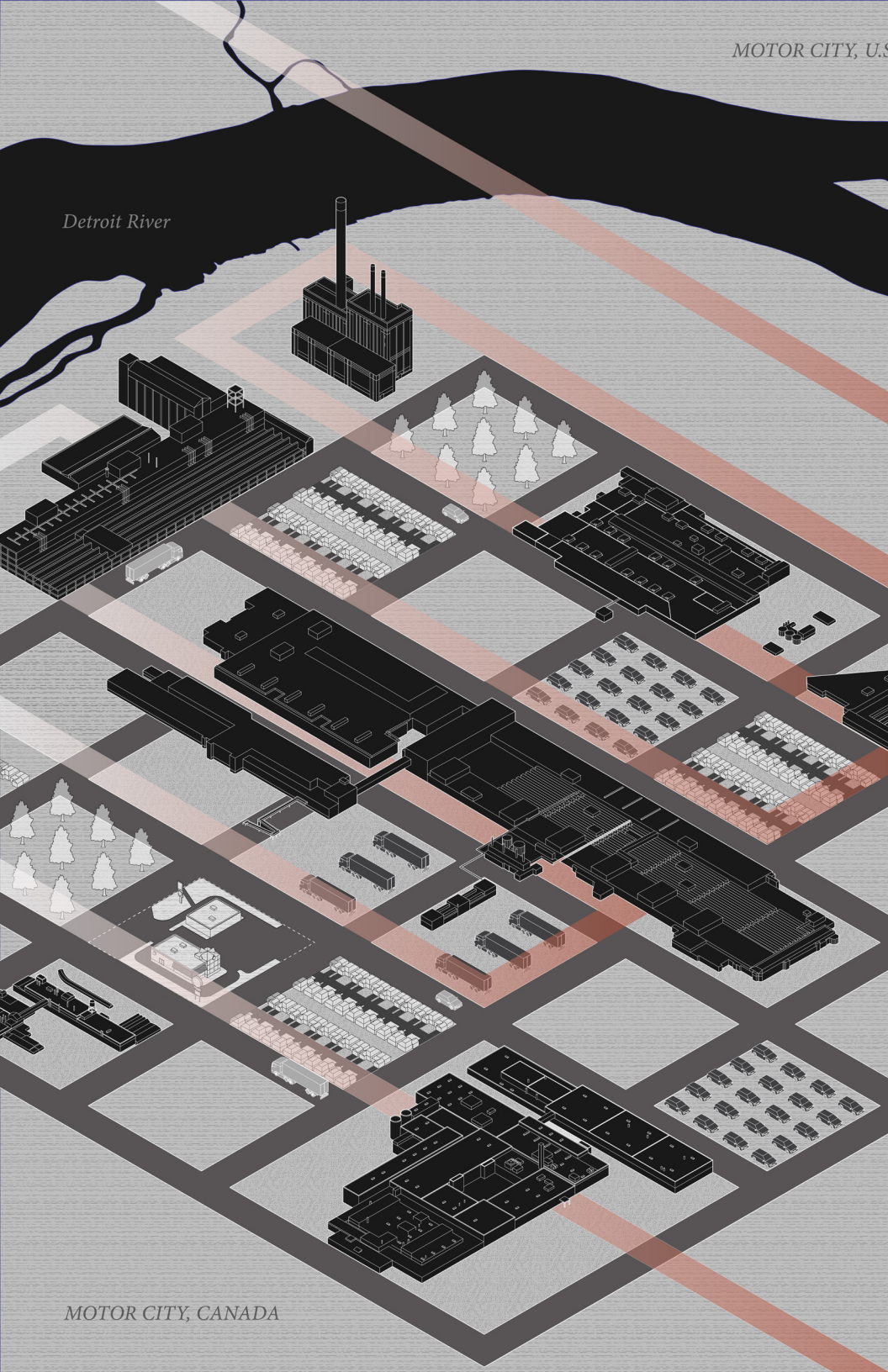
13 Taylor Campbell, "CAMPP Pursues Court Appeal of Tribunal's Decision on Mega-Hospital ...," The Windsor Star, December 18, 2019, https://windsorstar.com/news/local-news/campp-seeking-leave-to-appeal-lpat-decision-on-mega-hospital/.

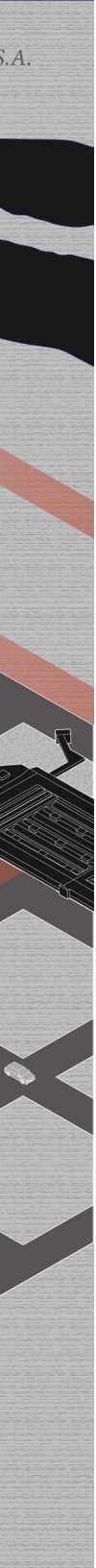
14 Brian Cross, "Farhi Moves Forward with $59m Plan for Former GM Trim Site - Windsor Star," The Windsor Star, March 18, 2019, https://windsorstar.com/news/local-news/farhi-moves-forward-with-59m-plan-for-former-gm-trim-site.

15 See *Section 1.3—Electric Society* for a more detailed examination of this policy.

16 As posited in design literature such as the aforementioned *Industrious City, Vertical Urban Factory,* and *New Industrial Urbanism,* among other discourses discussed in *Section 1.2—Industrial Urbanism.*

Abandoned North Entrance of Ford Windsor Engine Plant, 2023 / Photo by Author


MOTOR CITY, U.S
Detroit River
MOTOR CITY, CANADA



Lifeblood

The word *Lifeblood* is commonly used in political discourse to provide an analogy for the central role of the automotive industry in the Southern Ontario region. Drawing upon this"automobility as life" discourse, this work reconfigures the city of Windsor around an arterial assembly line, whose spatial organization extends beyond the means of production into the everyday lives of its inhabitants.

Inspired by the imaginative representational techniques of Rania Ghosn and El Hadi Jazairy's *Geostories*, this drawing shows a fictive landscape rooted in the reality of a city whose geography and political ecology have evolved around automobility. Here, the dominance of the car and the truck are reflected not only in their sheer size, but also in the various car-oriented typologies that occupy the city grid. This work utilizes scalar abstraction, showing the massiveness of the factory at a scale where other structures are still perceptible.

Glossary & Index

1.0 **Electromobility**
1.3 While *electromobility* is generally used to refer to a wide range of vehicles and mobile transportation, this study uses this term synonymously with the electric vehicle (EV) in the form of a private car.

1.1 **Fordism**
The logic of localized mass production and consumption popularized by the American automobile industry and the adoption of the assembly line, which allowed complex products to be completed by unskilled workers engaging in repetitive tasks. Henry Ford is commonly credited for the adoption and spread of this method, along with the principle that workers should be paid enough to purchase the product that they manufacture.

1.1 **Industry 4.0**
An emerging fourth industrial shift characterized by digital connectivity and collaboration between specialized and complex technologically-advanced industries. This type of industry relies heavily on automation, but also produces less emissions and pollution, allowing it to become situated in closer geographical proximity to other land uses.[1]

1.0 **Megafactory**
1.1 For the purposes of this study, the term megafactory is used to allude to the
3.2 massive scale of automotive manufacturing facilities. Where many plants may
3.3 encompass multiple buildings, the observed spatial conditions in Windsor show an agglomeration of all operations under one roof, thus comprising a building typology in itself. While the terms factory, plant, and facility are used interchangeably throughout this study, it is important to note their differing definitions. Factories are often used to describe structures or buildings of production, whereas plants are used to describe technical sites that may encompass other processes.[2] Facility is a more technical term that can often be found in academic literature; however, in colloquial language and media, all three terms are used to describe the various activities that take place in sites of automotive production.

1.2 **Morphology/Typology**
2.0 This study uses morphology to describe differing configurations of land use and building grain on an urban scale, often using morphologies to categorize the relationship between megafactory buildings and their context. Typology is used to describe the form or function of the building itself, independent from its surroundings. For further discussion of these terms, see Morpho-Typological Definitions in *Section 2.0– Methodological Overview & Notes on Site Selection.*

1.1 **Neoliberalism (Post-Fordism)**

As defined by David Harvey, Neoliberalism is the pervasive political ideology that mandates the application of free market logic to everyday life and the construction of the city. This results in the removal of protectionist and social welfare policy and frameworks in favor of privatized systems. Throughout this project, this term is used synonymously with Post-Fordism to describe the period of time and general political ecology following the Fordist period.

1.2 **New Industrial Urbanism**

A model integrating industrial production with the existing city. Proponents of this argue that hybridity, flexible use, and integration will lead to increased productivity and improved liveability in the contemporary industrial age.

1.1 **Post-Industrial Urbanism**

4.0 A wave of changes in the built environment closely associated with the migration of industry away from city centers following the decline of Fordism. Many former industrial sites were revitalized in brownfield remediation projects, aiming to return polluted land to the public sphere.

1.1 **Rust Belt (Great Lakes Region)**

4.0 The Rust Belt is often used to describe the American region surrounding the Great Lakes and encompasses a number of industrial cities that boomed during the early 1900s, before suffering from widespread disinvestment in the latter half of the century. While Canadian industry shared in some of these struggles, policy and the productivity of the automobile industry was significantly different North of the border.[4] Recently, practitioners have called on both nations across the Great Lakes to unite, defining a new mega-region for built environment discourses.[5]

Notes

1 This project relies heavily on learnings from *The Industrious City* to define and and understand the implications of the fourth industrial revolution.

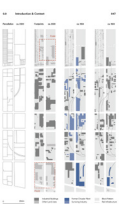
2 Cambridge Dictionary. (Cambridge: Cambridge University Press & Assessment 2023), s.v. "Factory" https://dictionary.cambridge.org/dictionary/english/factory

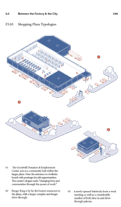
3 David Harvey, "Neoliberalism as Creative Destruction," *The Annals of the* American Academy of Political and Social Science 610, no. 1 (2007): 21–44.

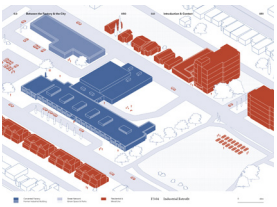
4 Dimitry Anastakis, *Autonomous State: The Struggle for a Canadian Car Industry from OPEC to Free Trade* (Toronto: University of Toronto Press, 2013).

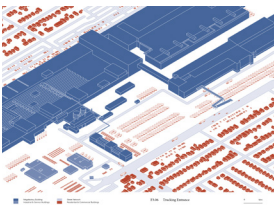
5 Daniel Ibanez et al., eds., *Third Coast Atlas: Prelude to a Plan* (New York: Barcelona, 2017).

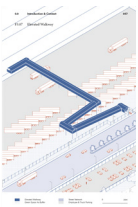
Figures

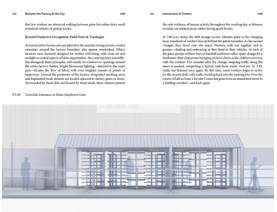


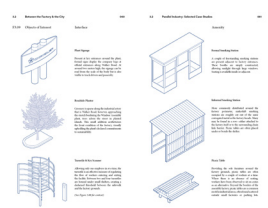


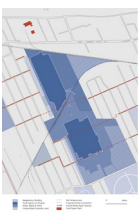


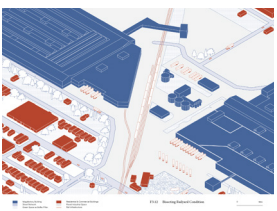


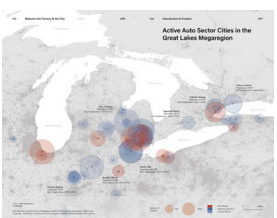


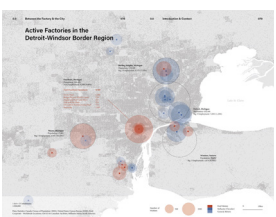


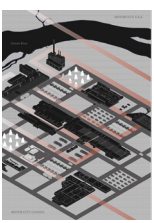












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ABSTRACT

As the market transitions towards electromobility, Canadian manufacturing cities in Southern Ontario are experiencing a period of uncertainty accompanied by significant population growth. Where many approaches provide a broad overview of regional changes and industrial capacity, this project contributes to the existing discourse by focusing on perceived conditions in the built environment. Developing a multiscalar, mixed-media approach, this study investigates spaces of physical transition surrounding large automotive plants during this critical point of transformation. Central to this inquiry are the Canadian manufacturing operations of the 'Big Three' (Chrysler, Ford, and GM) in Windsor, Ontario. Field observation is combined with analytical drawing techniques to provide a visual counter-perspective—of marginal spaces and workers in an industrial city—to a dominant narrative, which implies that universal prosperity is synonymous with mass production (and consumption) of the electric vehicle. This analysis will form a starting point for exploring future potentials for the reuse or integration of megafactory structures within the existing city fabric, providing alternatives for urban growth and densification.

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