

BETWEEN THE FACTORY & THE CITY

Liminal Spaces of the Automotive Plant

Emma Hwang
Prof. Lukas Pauer; Prof. Roberto Damiani (advrs.)

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UNIVERSITY OF
TORONTO



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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. 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.² 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.

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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.³ 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 aut centrality.

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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.⁴ 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.⁵ 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.

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.



1.1 Evolving Industry: A Brief History of Global Transformations

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.

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.⁶ 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.⁷ 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.⁸

1.2 The Critical Role of Southern Ontario

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.⁹ 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.¹⁰ 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.¹¹ For the provincial government, electrification of the automotive industry is seen as a crucial pivot point toward meeting sustainable goals and attracting technological investment.

Located on the national border, Windsor has a long history of cross-border exchange and industrial cooperation with its American counterpart, Detroit.

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.¹² 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.¹³

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. 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. 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.¹⁴ General Motors followed, with the creation of its transmission factory and headquarters in 1910. 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.¹⁵ 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.

As the industry turns towards electromobility, the city will continue to play a key role in the contemporary transition.

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. As the industry turns towards electromobility, the city will continue to play a key role in the contemporary transition.



2.1 Industrial Urbanism: Notes on Emerging Design Literature

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*.”¹⁶ 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.¹⁷

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.¹⁸ 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.¹⁹ Where autonomous and parallel industry adhere to logics of separation, integrated industry situates spaces of manufacturing close to other parts of the city. It is this third morphology that Hatuka and Ben-Joseph, regard as the most sustainable and beneficial form of urban industry, alongside their contemporaries. 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 observes the relationship between megafactories and finer-grain land uses, adopting the morphologies outlined by Hatuka and Ben-Joseph.²⁰

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.²¹ 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 also consider 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—are largely critical of industrial potential, focusing on an inequitable and toxic legacy that has spanned generations, alongside specific lived experiences.²² 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 draws on land-use categories for morphological comparison, while acknowledging how these various forms of industry have contributed to socioeconomic inclusion and exclusion throughout their evolution.

2.2 Towards a Visual Inquiry: An Overview of Methodology & Representation

This study comprises both visual and written methods, combining critical literature and observation with diagrams and drawings that represent the perspective I developed over the course of my fieldwork.

Although research initially encompassed both historical and spatial aspects, some temporal elements were discarded for a greater focus on liminal spaces. This decision was largely influenced by my own experience and familiarity with spatial analysis. The scope and specificity of this research were also limited by its time frame. Site visits occurred over a 10-day period, with the majority of research conducted over a mandated 6-week period.

Although these periods of brief observation were conducted, this research is by no means an in-depth ethnographic study—rather adopting methods of ethnographic note-taking from the discipline as a way to enhance the overall inquiry. In terms of 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 written portion of this study is composed of secondary source research, a discourse and narrative analysis, and thick description.²³ 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.²⁴ 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

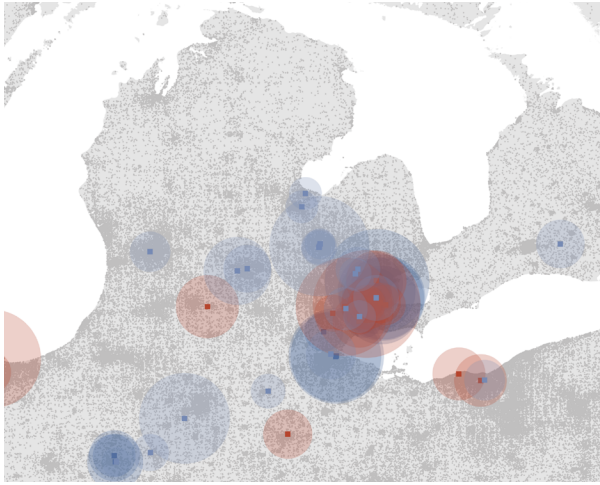
traffic or key objects that played a role in mediating between the factory and its inhabitants. Various observations were grouped into main conditions that informed each drawing that accompanied the case studies.

Drawing and representational methods were used as key modes 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.

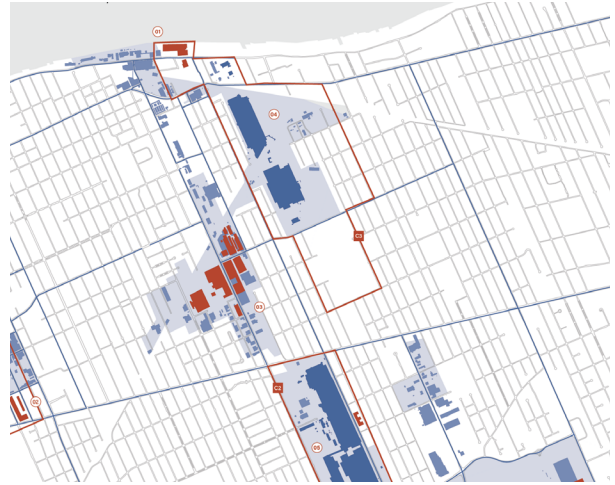
By examining multiple scales throughout each case study, different dimensions and aspects of each factory site represent different perspectives of an observed phenomenon.

The multiscale dimension of this investigation was a key decision that shaped the course of this study. By examining multiple scales throughout each case study, different dimensions and aspects of each factory site represent different perspectives of an observed phenomenon. 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.

Operational Scales: Applications



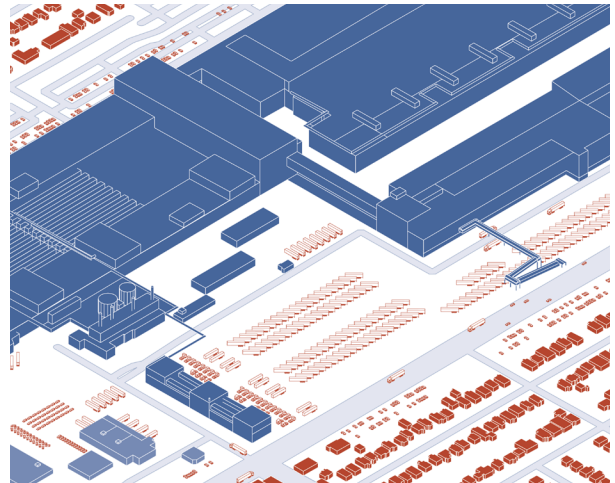
1:2,500,000 - Regional Scale



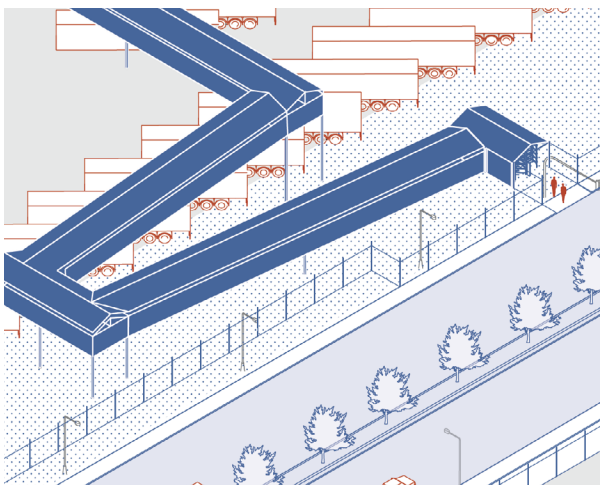
1:250,000 - Municipal Scale



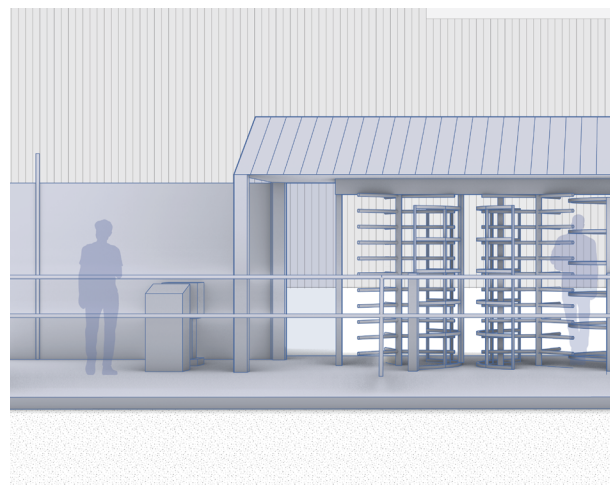
1:10,000 - Partial Municipal Scale



1:5,000 - Immediate Urban Context



1:1,000 - Larger Structures



1:50 - Scale of the Body / Lived Perspective

2.3 Site Selection Criteria

In terms of site selection, this project considers the relationship between the factory/industry and the rest of the city, leveraging the three morphologies outlined by Hatuka & Ben-Joseph.²⁵ 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. 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.

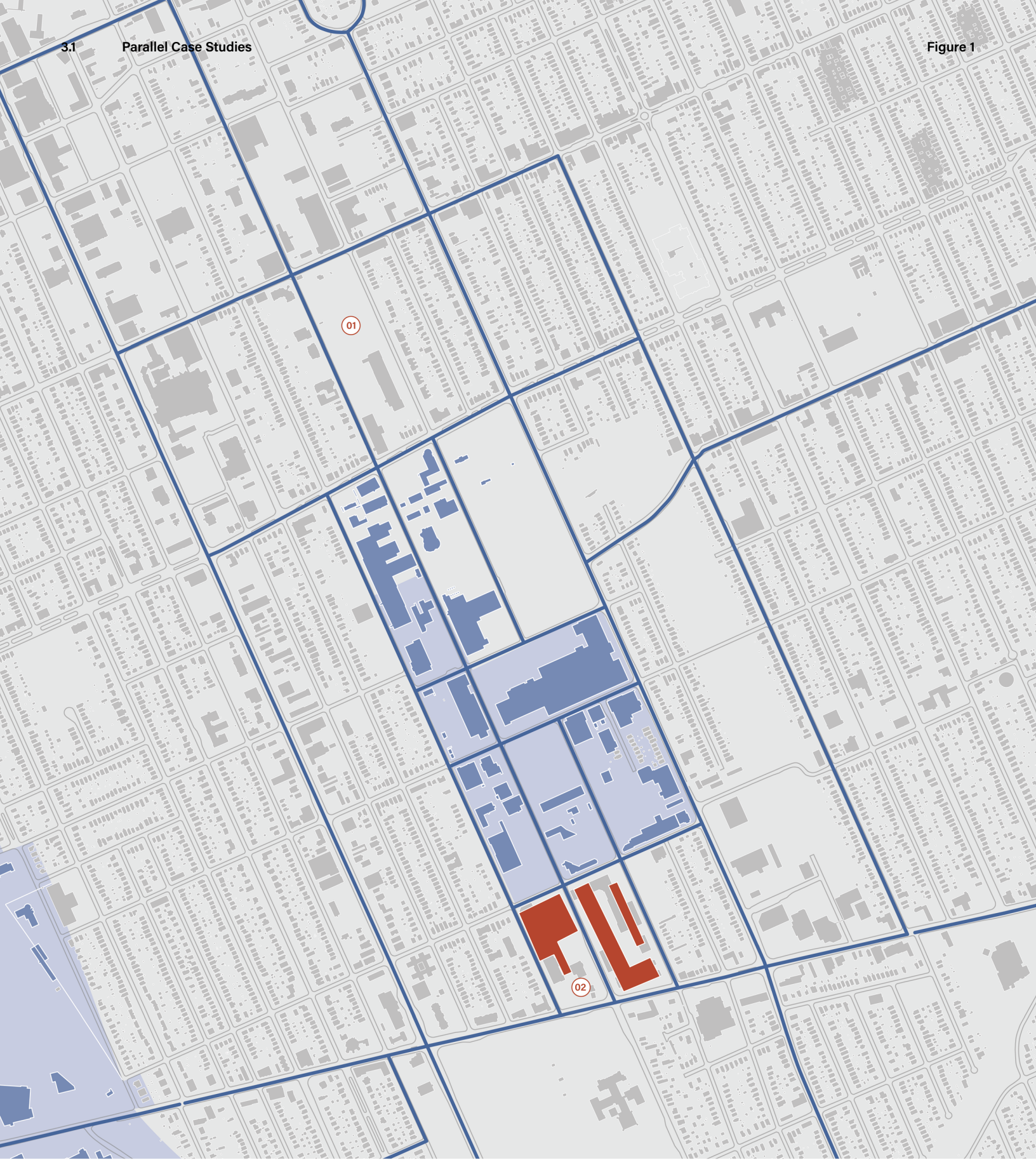
The following case studies explore three megafactories, past and present, situated in parallel industrial corridors. These industrial areas are surrounded by a diverse array of land uses, with residential uses running parallel to industry, and commercial sites at either end (or in the case of the Ford corridor, running through the center). The creation and evolution of these zones were largely shaped by the establishment of rail infrastructure extending from the riverfront. This contrasts later industrial morphologies, consisting of planned autonomous parks towards the periphery of the city. The spatial conditions of each site are described with insights from my own field observations, with themes of reuse, bodily scale, and the creation of voids as central discussions in each case study.






Case Studies



Case Study 1: Maxwell-Chrysler Assembly Plant (1916 - 83)
Case Study 2: Stellantis Windsor Assembly Plant (1928 -)
Case Study 3: Ford Windsor Engine Plant (1923 -)



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

- 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 neighboring industrial cluster alludes to the plant's former existence. Beginning at the 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 legacy of the automobile persists in the car-centered typology of the shopping plaza.

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 in the 1950s. 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 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.

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.

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 building 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.²⁶

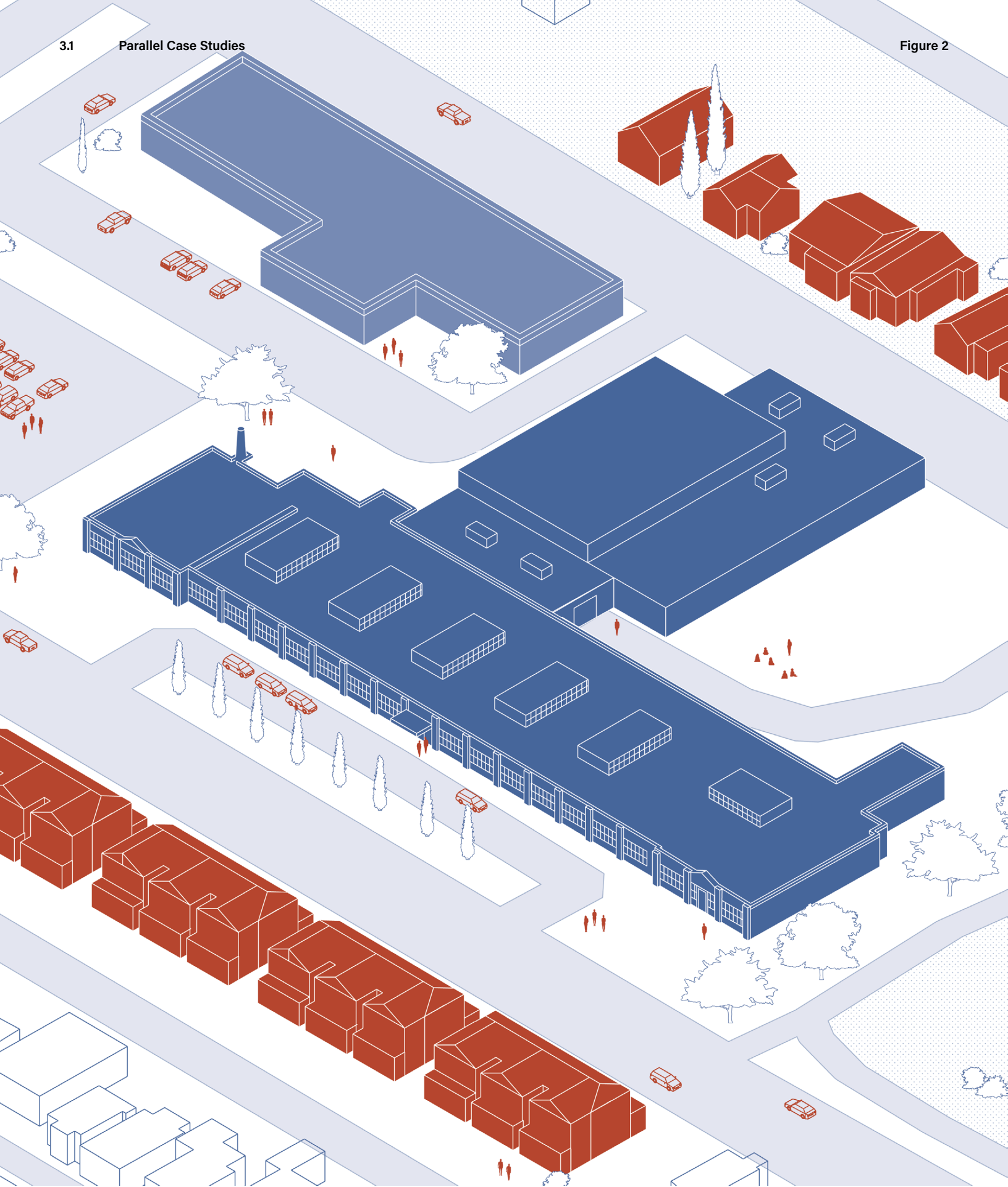
While active reuse is a key aspect of the design, the decision to maintain these elements recenters the historic identity of both industry and community.


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.²⁷ 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 greenspace, Wigle 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 this park was not a former industrial site, it presents the potential transformative scenario of returning industrial areas to the public realm as green space, 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 an incentive for reuse, new developments may avoid such sites due to unforeseen complications that may arise during remediation processes.²⁸





 Covered Factory
Former Industrial Building
 Green Space & Parks

 Residential & Commercial Buildings
 Street Network

0 20m



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

- 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 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. This is 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.

At this scale, the human body is barely perceptible, observed only from ground zero at brief interfaces along the factory facade.

The enormous volume and productivity of the factory are reflected in both its workforce and 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.

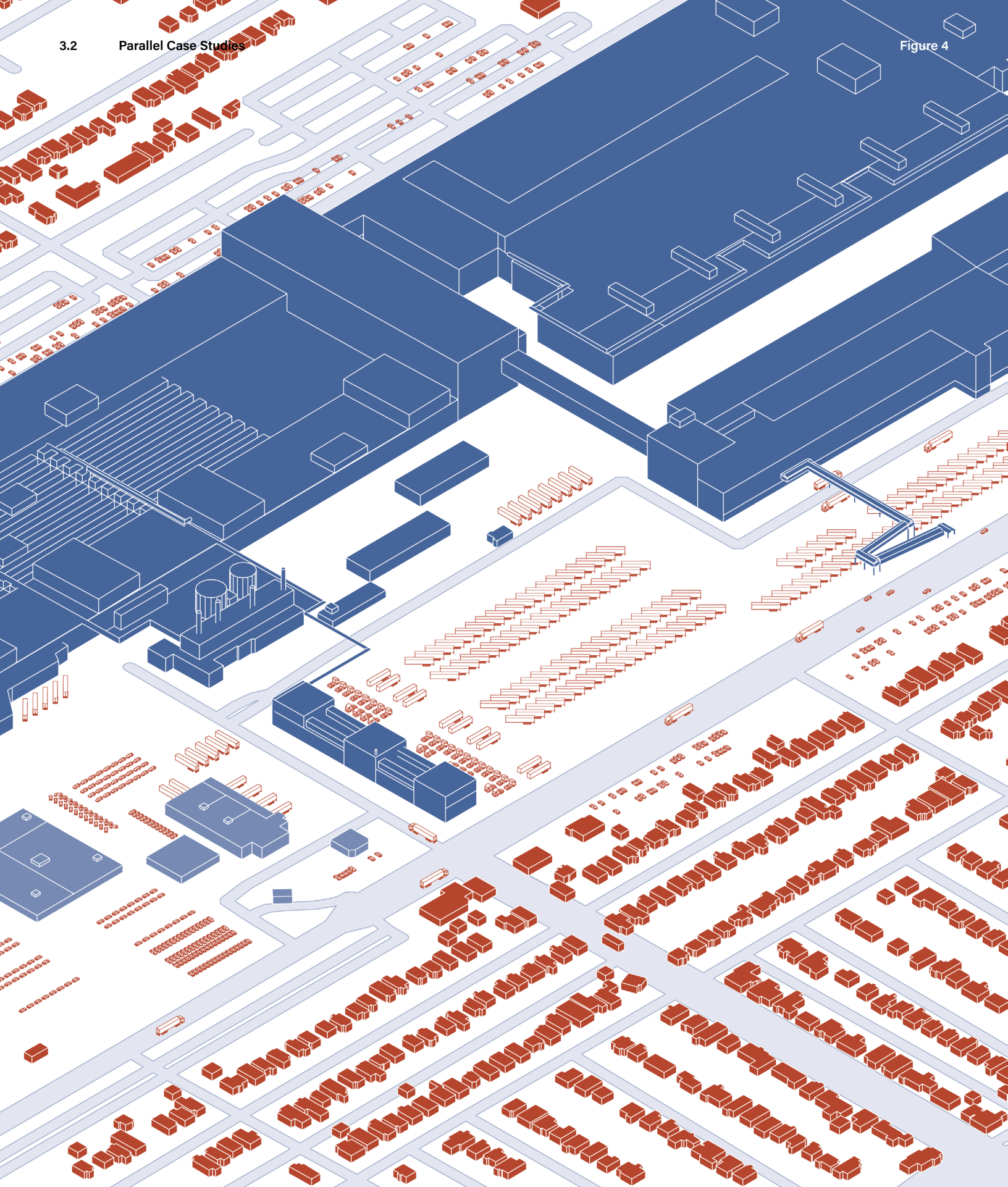
This condition is obstructed along the east side of the factory where employee gates are located. Where employees move perpendicular to the factory, crossing the six-lane Chrysler Centre to enter the factory through a gate, trucks move parallel to the plant—occupying the space between gates and human 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 that few workers are observed walking between gates but rather drive small industrial vehicles or pickup trucks.

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.²⁹ 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 the only evidence of human activity throughout the working day, as laborers socialize on isolated picnic tables during quick breaks.

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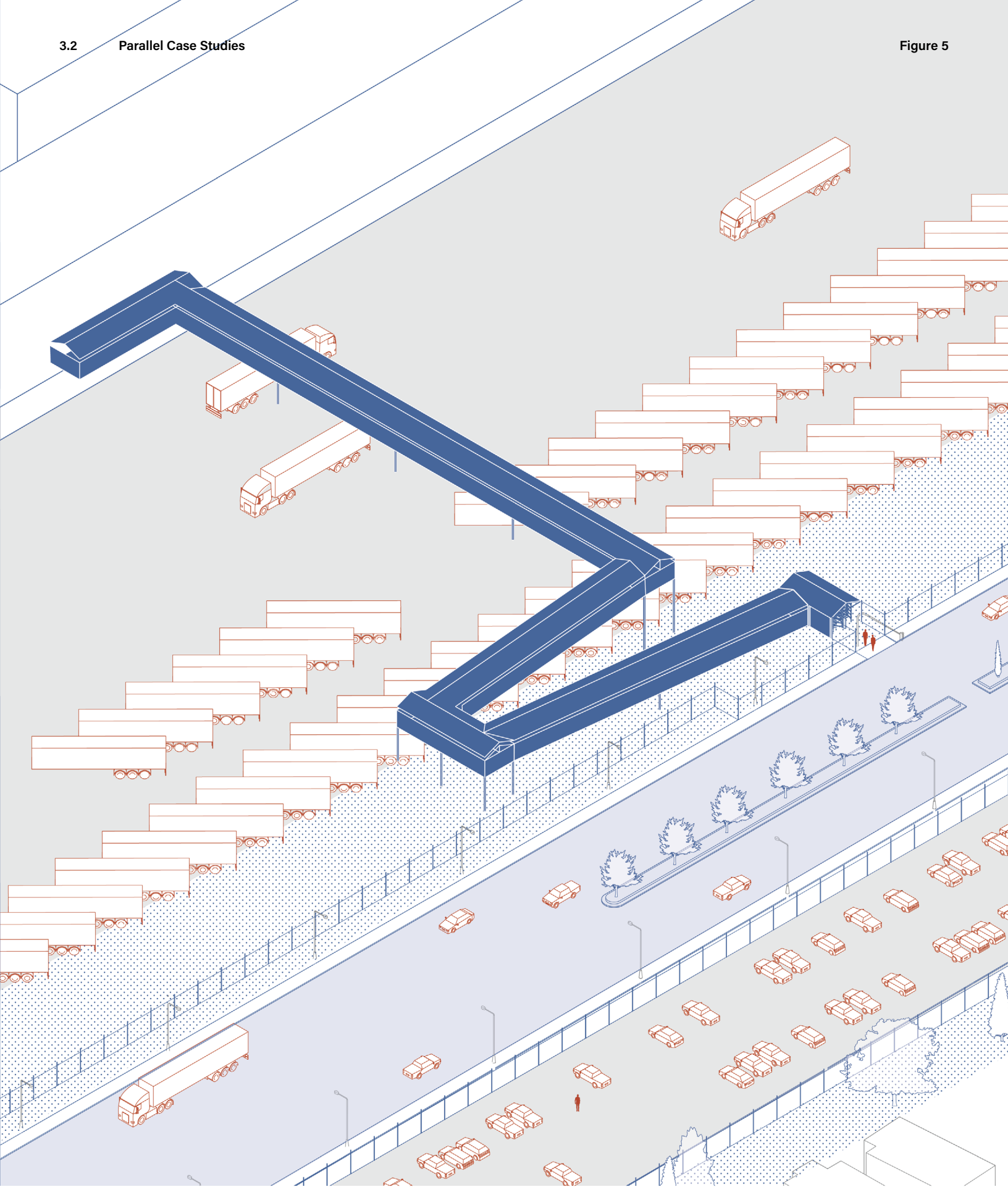
At 3:00 p.m. sharp, the shift change occurs. Minutes prior to the changing hour, hundreds of workers line up behind the gated turnstiles. As the second changes, they flood onto the street. Workers walk out together and in groups—chatting and embracing as they head to their vehicles. Five minutes after 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.






 Megafactory Building
Industrial & Service Buildings

 Residential & Commercial Buildings
Street Network

0 50m

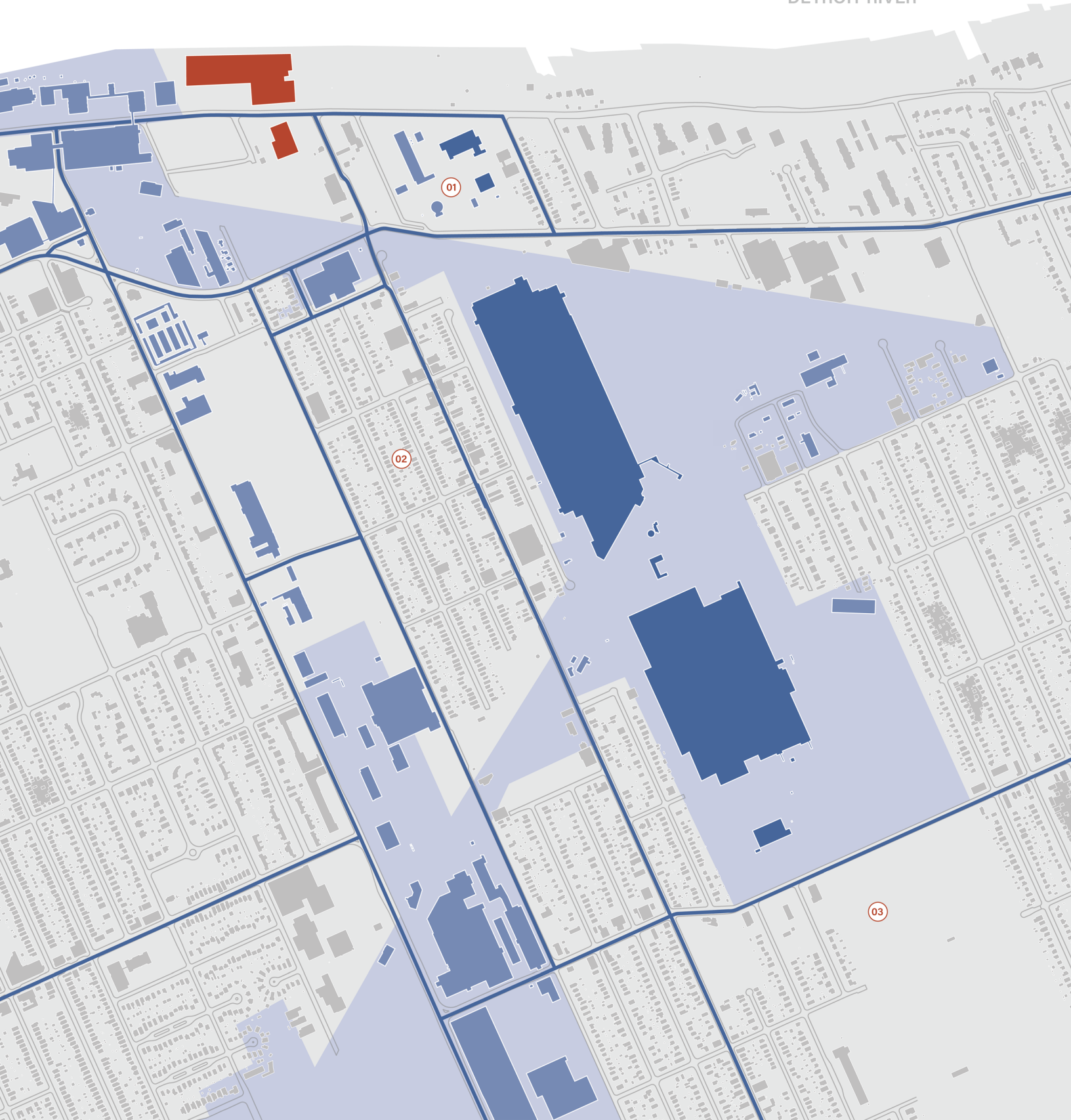


 Elevated Walkway
 Green Space as Buffer



 Street Network
Employee & Truck Parking

0  20m

DETROIT RIVER



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

- 01 Ford Historic Power Plant
- 02 Ford City BIA
- 03 Ford Test Track Park
-  Main Truck Routes
-  Road Network

0 250m

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

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.³⁰ 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.

With no declared plans for electrification, the state of the engine plant remains precarious.

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.

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.³¹ While 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

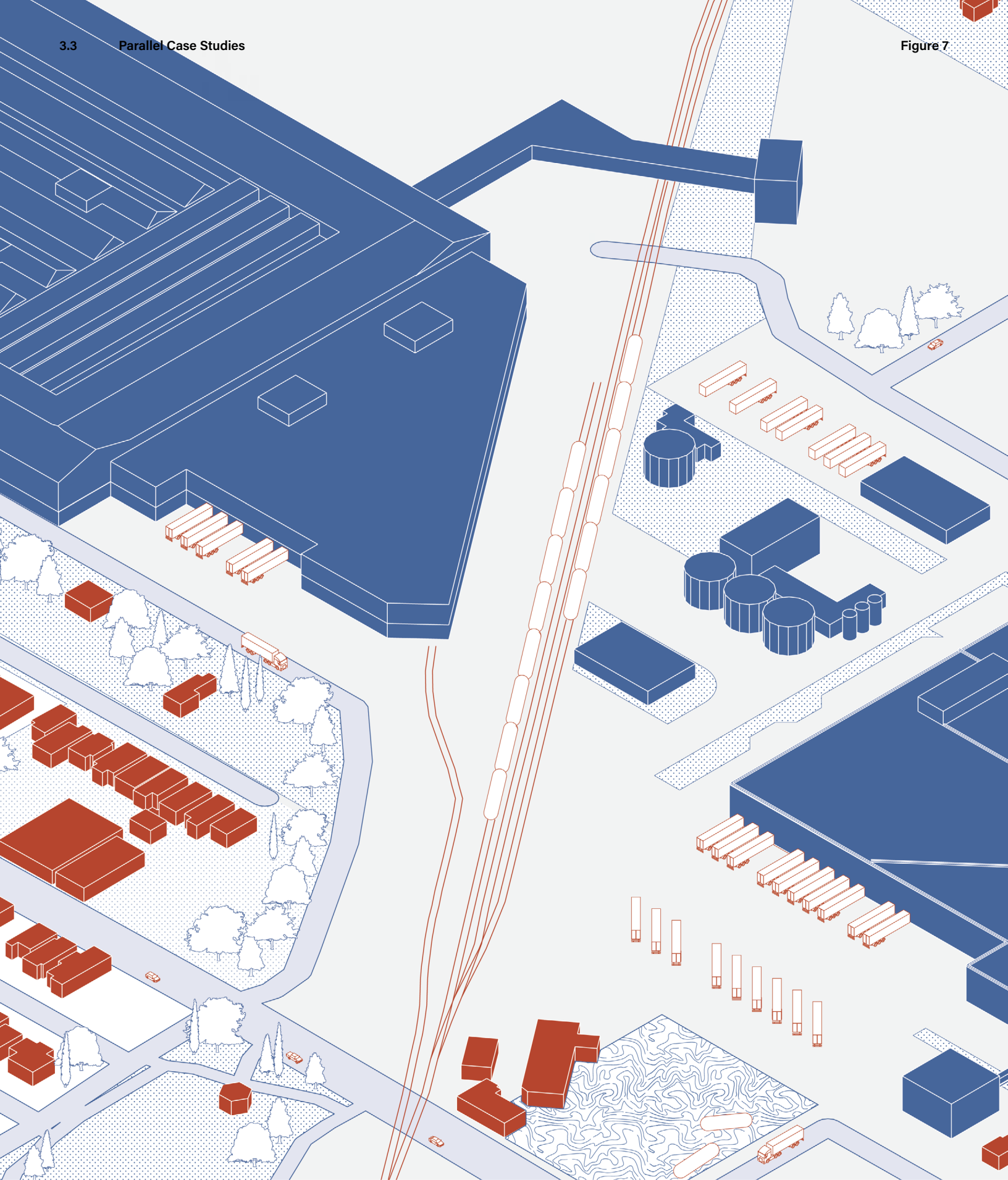
building homes to create a small, but significant, municipality over the course of a few decades.

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.³² 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.

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.³³ 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.

Established prior to the surrounding residential fabric, the factory was the driving force of development in this Industrial corridor.

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.³⁴ 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.



4.1 Discussion of Findings

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.

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. 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.

This case study also demonstrates how informal uses—such as streetside vendors and community gardens—have the potential to activate these voids.

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.³⁵

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.

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 2018.³⁶ 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.³⁷ This strategy accompanies other efforts to preserve the

heritage of the original 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.

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.

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.³⁸ Recent infrastructural investment in the Gordie Howe Bridge and Rt. Hon. Herb Gray Parkway is also expected to draw additional industry.³⁹ 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.⁴⁰ 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.⁴¹ 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.

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.⁴² 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.



4.2 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. 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 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.⁴³

4.3 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.

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.



Notes

- 1 *The Future Is Electric* (Government of Ontario, 2023), <https://www.youtube.com/watch?v=W72eiLn12k0>.
- 2 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.
- 3 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>.
- 4 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.
- 5 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.
- 6 Eran Ben-Joseph and Tali Hatuka’s *Industrial Urbanism* (2022) is one such publication that observes the evolution of industrial typologies in different cities.
- 7 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.
- 8 For further elaboration on this literature, see 2.1—*Industrial Urbanism: Notes on an Emerging Discourse*. This section reviews all relevant works cited in this introduction, while also discussing how existing models will inform the course of this research.
- 9 Various Great Lakes cities are profiled in *Third Coast Atlas* (2017).
- 10 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.
- 11 *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.
- 12 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.
- 13 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.
- 14 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.
- 15 Charles K. Hyde, *Riding the roller coaster: A history of the chrysler corporation*. Detroit: Wayne State University Press, 2003.
- 16 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.
- 17 Ibid.
- 18 Schaefer, “The Industrious City,” 25–44.
- 19 Tali Hatuka and Eran Ben-Joseph, *New Industrial Urbanism: Designing Places for Production* (New York: Routledge, Taylor & Francis Group, 2022).
- 20 See Section 2.3—*Site Selection Criteria* for further elaboration on how these morphological definitions are used throughout this research.
- 21 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.
- 22 Much of the literature that informed the beginnings of this research focused on the role of technical land and infrastructure in the built environment. Among these are Keller Easterling’s *Extrastatecraft* (2014), *Technical Lands* (2023)—edited by Charles Waldheim and Jeffrey S. Nesbit, and Jesse LeCavalier and Clare Lyster’s various works on logistics.
- 23 For a more detailed overview of literature referenced throughout this study, see Section 2.1—*Industrial Urbanism: Notes on Emerging Design Literature*.
- 24 Henri Lefebvre and Donald Nicholson-Smith, *The Production of Space* (Oxford, OX, UK: Blackwell, 2017).
- 25 Hatuka & Ben-Joseph, “Industrial Urbanism.”
- 26 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.
- 27 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/>.

- 28 Many of these insights are owed to conversations with the city's policy planners, who were kind enough to meet with me and describe the City's programs and position on Brownfield remediation and industrial investment.
- 29 Windsor Assembly Plant Manufacturing Footage (Stellantis Media North America, 2016).
- 30 While there were formerly six of these iconic entrances at the corners of the plant, one remains—quietly situated along Henry Ford Centre Drive.
- 31 See 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.
- 32 See 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>
- 33 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.
- 34 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.
- 35 "Greenwood Yard," SvN Architects + Planners, January 27, 2022, <https://svn-ap.com/research-and-strategy/greenwood-yard/>.
- 36 Planning and Building Department. Key Stakeholder Group, Ford City Community Improvement Plan § (2018).
- 37 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.
- 38 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>.
- 39 "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>.
- 40 "Sandwich South Master Servicing Plan " (City of Windsor: Dillon Consulting, May 2023).
- 41 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/>.
- 42 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>.
- 43 As posited in design literature such as the aforementioned *Industrious City*, *Vertical Urban Factory*, and *New Industrial Urbanism*, among other discourses discussed in Section 2.1—*Industrial Urbanism: Notes on Emerging Design Literature*.

Image Captions & Credits

- 1 Workers within the Ford Windsor Engine Foundry, 1966 / Windsor City Archives
- 2 Immediate context of the Windsor Engine Plant, 1969. Today, this section of the plant is vacant. / Ford Heritage Vault
- 3 Robotic arms have completed most of the welding at the Chrysler Assembly Plant since their addition in 1983. / Stellantis Media North America
- 4 The main gate at Windsor Assembly Plant in 1959 / Stellantis Media North America.
- 5 Highway Interchange in front of the New Ford Essex Engine Plant, 1987 / Windsor-Essex Development Corporation
- 6 One of many abandoned industrial lots along McDougall Street, 2023 / Photo by Author
- 7 An abandoned entrance at the Ford Windsor Engine Plant, 2023 / Photo by Author
- 8 Aerial photograph of undeveloped land west of Ford Windsor Engine Plant, 1941 / Windsor-Essex Development Corporation
- 9 Aerial photograph of North end of the Windsor Engine Plant facility and former foundry, 1987 / Windsor-Essex Development Corporation

Figures

- 1 McDougall Industrial Corridor - Figure-Ground
- 2 Industrial Retrofit
- 3 Stellantis-Chrysler Assembly Plant - Figure-Ground
- 4 Trucking Entrance
- 5 Elevated Walkway
- 6 Ford Windsor Engine Plant - Figure-Ground
- 7 Bisecting Railyard Condition



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Notable Mediography

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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.