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Citation: Ponomaryova, A., & Ryan, B. D. (2021). Will Kyiv's Soviet Industrial Districts Survive? A Study of Transformation, Preservation, and Demolition of Industrial Heritage in Ukraine's Capital. *Journal of Planning History*, 20(3), 220-268.

As Published: 10.1177/1538513220939092

Publisher: SAGE Publications

Persistent URL: <https://hdl.handle.net/1721.1/155428>

Version: Author's final manuscript: final author's manuscript post peer review, without publisher's formatting or copy editing

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Will Kyiv's Soviet Industrial Districts Survive? A Study of Transformation, Preservation, and Demolition of Industrial Heritage in Ukraine's Capital

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Journal of Planning History, 2020

Biographies

Anastasiya Ponomaryova (shtnastya@gmail.com) received her bachelor degree at the Donbas National Academy of Civil Engineering and Architecture and her master's degree at the Kyiv National University of Construction and Architecture (KNUCA). At 2012, she received her post-graduate education in KNUCA, where she researched Kyiv's former industrial landscape. She was a visiting scholar at the Norman B. Leventhal Center for Advanced Urbanism at the Massachusetts Institute of Technology in 2017–2018. In 2015, She cofounded an independent agency, Urban Curators in Kyiv, and since that time she has created a dialogue between the practice and theory of informal urban transformations, and between disciplines, with a particular dialogue around the intersection of architecture, urbanism, and art. She is an author of essays and articles about Urban Curators' practice in Ukraine.

Brent D. Ryan (bdr@mit.edu) is an associate professor of urban design and public policy in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology, where his research focuses on the esthetics and policies of urban design, particularly in deindustrializing cities. His first book, *Design after Decline* (Philadelphia: University of Pennsylvania Press, 2012), examined Philadelphia and Detroit's redevelopment struggles after deindustrialization. His second book, *The Largest Art* (Cambridge: MIT Press, 2017), projects a new future for urban design in a pluralist world. Brent is currently conducting research on deindustrialization, population loss, and urban design in China, India, Russia, the United States, and Ukraine.

Abstract

In the 1930s and 1940s, multiple five-year Soviet plans for national industrialization transformed Ukraine's capital Kyiv (Russian *Kiev*) into a dramatic industrial metropolis. By 1960, Kyiv was a core industrial city with renovated prerevolutionary factories and massive new industrial enterprises. Ukraine's 1991 independence threatened industrial complexes with demolition for retail, residential, and office uses. We examine Kyiv's Soviet industrial legacy as prescribed in master plans of 1936 and 1947, and successive five-year plans. We profile five significant industrial complexes and their divergent fates today. We call for future transformations of Kyiv's monumental Soviet industrial enterprises with enhanced awareness of heritage value.

Introduction

The city of *Kyiv* (Київ in Ukrainian, also known as the Russian *Kiev* or Киев) is an ancient metropolis with almost 1500 years' history in the very geographic heart of Ukraine. During the centuries preceding the twentieth, Kyiv intermittently lost, then regained its status as capital, ultimately being transformed into a secondary city in Russian-dominated empires. During Soviet times (1917-91), Kyiv experienced substantial growth centered not around cultural importance but around industry. The Soviet Union's first two five-year plans (1928-1937) for national industrialization dramatically transformed Kyiv from a trading city based on crafts and commerce into a principal industrial node of the USSR. The city's physical redevelopment happened so rapidly that adaptation of the old city fabric was hardly required: instead, new districts were added with great rapidity. As a result, today's Kyiv consists of districts belonging to different eras: reconstructed medieval monasteries adjoin monumental postwar 1950s boulevards, all surrounded by vast districts of prefabricated, multifamily apartment buildings and an increasing number of post-independence 'capitalist districts'. A large proportion of this cityscape is industrial: much of historic Kyiv is comprised of large industrial estates constructed or reconstructed under mid-century Soviet industrialization plans (Figure 1). These industrial estates represent not only exemplars of significant industrial architecture, but represent unique urban ensembles. Today, many of these spaces are under threat. Alternative futures for Kyiv's industrial spaces are needed to forestall the imposition of conventional, business-as-usual solutions that typically require clearance of industrial sites. As a response, this study documents three scenarios for reactivation of industrial districts and structures that bypass conventional approaches. These scenarios *increase awareness of the value* of ex-industrial landscapes; *temporarily occupy* industrial space through *cultural appropriation*; and rehabilitate buildings where a *new function becomes a catalyst* for industrial district changes and potentially for preservation of industrial heritage.

Since 1991, Kyiv has been the capital of independent Ukraine. No longer a secondary city in a socialist country, Kyiv has experienced substantial development under capitalism. Hotels, luxury offices, and housing estates have proliferated in the city center and at the city periphery. The transformation of the city's industrial districts, on the other hand, has been slower. With many of their functions and enterprises obsolete, and many buildings redundant and abandoned, Kyiv's industrial districts have much-reduced activity. At the same time, the central, often dramatic location of some of these districts near the city center and along the Dnipro¹ (Russian *Dnieper*) River has made them increasingly tempting redevelopment targets.

¹ The terms Dnipro and Dnieper, referring to Kyiv's principal river in the Ukrainian and Russian languages, are used interchangeably in Kyiv, and are also used interchangeably in this paper.

Demolition of some districts has already begun, while others remain thus far mostly intact. Kyiv's industrial heritage is substantial and extensive, but it is under increasing threat. What is to happen to the city's industrial districts and to their impressive physical heritage of industrial structures and ensembles?

Around the world, formerly industrial districts in deindustrializing cities have experienced divergent fates. Some districts, like Paris's Parc de la Villette², have been transformed into monumental cultural complexes, but these transformations may come at the expense of the district's physical fabric and industrial structures.³ London's Docklands⁴, for example, is an impressive office district, but it shows little of its past as an industrial warehouse area, instead representing, at least to one author, "one of the worst collections of late 20th century building to be seen anywhere in the world." Germany's renovations of deindustrializing cities, on the other hand, are sensitive to and expressive of the industrial past; the well-known Emscher Park in the Ruhr valley of western Germany contains numerous industrial structures tastefully renovated as recreational sites, civic structures, or institutions⁵. Europe's renovations of industrial districts have typically come at substantial expense to national and state governments: industrial redevelopment is never cheap, particularly when environmental cleanup costs are applied^{6,7}.

The United States represents a cautionary case of industrial heritage preservation. With limited government funding, municipalities dependent upon local property tax, and intermittent social commitment for industrial preservation, examples of preservation of twentieth-century American industrial districts are limited and often adventitious. Preservation of steel mills, for example, has been limited to occasional fragments of blast furnaces, with most structures demolished for economic development ventures. Nonprofit groups, often quite limited in capacity, have played an important role in promoting the survival of such structures as remain.⁸ Detroit, a city that was once home to America's finest collection of automobile factories, is a particularly cautionary tale. The city has demolished all but a few remnants of its early and mid-

² Tschumi, Bernard. *Architecture and disjunction*. Cambridge: MIT Press, 1996

³ The book *City as Loft* catalogues many industrial transformations around the world, but it focuses on best practices and does not show the many industrial districts whose architectural and urbanistic past has been mostly or wholly eradicated. Baum, M., and Christiaanse, K., *City as Loft, Adaptive Reuse as a Resource for Sustainable Urban Development*. Zurich, Switzerland: gta Verlag (2012): 8-13.

⁴ Lindsey German and John Rees, *A People's History of London* (Croydon: Verso, 2012), 286; Stephanie Williams, *Docklands* (London: Architecture Design and Technology Press, 1990), 8.

⁵ Raines, Anne Brownley. "Wandel Durch (Industrie) Kultur[Change through (industrial) Culture]: Conservation and Renewal in The Ruhrgebiet." *Planning Perspectives* 26, no. 2 (04 2011): 183-207.

⁶ Uttke, Angela. *International Building Exhibition Emscher Park: The Projects 10 Years Later*. Essen: Klartext, 2008.

⁷ A 50-million euro investment financed the construction of the Duisburg-Nord Landscape Park – *Ibid.*, 32

⁸ Campo, Daniel. "Rustbelt insurgency and cultural preservation: how guerrilla practices saved the blast furnaces and the automobile factory." *URBAN DESIGN International* (2019): 1-14.

20C automotive heritage, with little outcry from citizens or preservationists.⁹ Deindustrializing Buffalo has preserved many of its iconic grain elevators through the efforts of iconoclastic developers and through the sheer indestructibility of the powerful concrete structures.¹⁰ Even New York City, with a strong preservation community, has stumbled when it comes to industrial heritage; the city recently demolished the majority of the Domino sugar plant to permit high-density luxury housing.¹¹ Across America, much twentieth-century industrial heritage has vanished nearly without trace.¹²

Evidence that other ex-Soviet countries can preserve industrial heritage is mixed. Generally weak markets have stifled redevelopment in many areas, but in cities with active development markets like Moscow, demolition of industrial heritage has often proceeded. In secondary Russian cities like Orenberg or Yakutsk, significant industrial structures have survived through benevolent neglect rather than purposeful restoration; there is simply no demand for many former industrial buildings, nor is there demand for much land in former industrial districts given that the cities themselves are often shrinking. The same is true in Ukraine for smaller cities like Kherson¹³, Pokrovsk¹⁴, Dobropillya¹⁵, Severodonets¹⁶ or Kostyantynivka^{17,18}, where industrial plants that closed in the early 1990s were inadvertently mothballed by stagnant markets and governmental dysfunction in the following decades.

Active preservation and reuse of ex-industrial facilities have also occurred in the ex-Soviet sphere. Moscow's ZIL social condenser, part of a former automobile plant, has been preserved and rehabilitated even as the larger district around ZIL has been demolished and redeveloped for luxury housing.¹⁹ Other examples of repurposed factories, most with cultural uses, include a relatively new project in Tbilisi called Fabrika [Factory]²⁰, another in Moscow also called Fabrika²¹, the Promprylad project²² in Ivano-Frankivsk, Ukraine, and the Art Zavod

⁹ Redacted, 2013.

¹⁰ Campo, Daniel. "Historic Preservation in an Economic Void." *Journal of Planning History* 15, no. 4 (07, 2016): 314-45.

¹¹ Paul Raphaelson, *Brooklyn's Sweet Ruin; Relics and Stories of the Domino Sugar Refinery*. New York: Shiffer, 2017.

¹² Campo, Daniel. "Iconic Eyesores: Exploring Do-it-yourself Preservation and Civic Improvement at Abandoned Train Stations in Buffalo and Detroit." *Journal of Urbanism: International Research on Placemaking and Urban Sustainability* 7, no. 4 (09, 2014): 351-80.

¹³ World Bank, *Ukraine Urbanization Review*. Washington: World Bank, 2016, page 123

¹⁴ Redacted, 2018,

¹⁵ Redacted, 2018.

¹⁶ Redacted, 2018.

¹⁷ Redacted, 2018.

¹⁸ Oleksandr Mykched, *Metacity: East. Transformation of Ukrainian East* (self-pub., "Huss" 2018), page 287 - 297.

¹⁹ <http://www.tspa.eu/portfolio/redevelopment-of-amo-zil-factory/>

²⁰ fabrikatbilisi.com

²¹ www.fabrikacci.com

²² <https://promprylad.ua/en/>

Platforma facility²³ in Kyiv. Promprylad is unusual among these rehabilitation cases in that much of the rehabilitation has been driven by crowdsourced, small-scale investors²⁴ rather than a single large investor. A small facility on site called MetaLab is also promoting citizen involvement in this rehabilitation²⁵.

Within those ex-Soviet or ex-socialist countries now within the European Union, governmental efforts have assumed a stronger role in the rehabilitation of industrial space. The Telliskivi creative city in Tallinn, occupying clusters of industrial buildings near the city center, has been supported by the Estonian Ministry of Culture. The creative city project strategy is in line with the city's larger economic development strategy²⁶. As a result, Tallinn government played a mediating role between the current industrial tenants of Telliskivi and the site developers. In this case both the buildings and current activities of the site are perceived to have value, indicating that at least some will be protected. In Ljubljana, Slovenia, the Rog Center of Contemporary Art²⁷, an industrial rehabilitation project sponsored by the European Union, has also combined government initiative and funding with grassroots efforts from current occupants of the site.

The rampant demolition of industrial heritage for economic development, or for sheer gentrification of city districts, is increasingly considered misguided. China, long a leader in demolition of cultural and architectural heritage, has increasingly elected to preserve industrial heritage to promote arts, culture, tourism and global visibility. Beijing's 798 Art Zone is one well-known example, while the Shougang Steel Plant is another.²⁸ The latter, a modernist complex built in 1950s in collaboration between China and the German Democratic Republic and vacant since 2008, has been partially repurposed for the 2022 Winter Olympics, with other areas scheduled to become an "industrial relics park".^{29,30} The spectacular architecture and unique spatial experience of twentieth-century industrial structures are the key drivers of China's industrial preservation campaign.

While industrial districts are experiencing post-industrial transformation in both Western (e.g. non-post-Soviet) and Eastern (e.g. post-Soviet or post-socialist) countries, the following particular aspects of such transformation in Eastern countries may be highlighted. Commonly the industrial legacy of post-socialist cities is undervalued and even undiscovered. Neither national

²³ artzavodplatforma.com

²⁴ <https://inventure.com.ua/en/investments/promprylad.renovation-in-ivano-frankivsk>

²⁵ <https://www.metalab.space/>

²⁶ <https://issuu.com/creativeindustries/docs/review2011>

²⁷ <https://tovarna.org/>

²⁸ Huang, Rui, ed. Beijing 798: reflections on art, architecture and society in China. Timezone 8, 2004.

²⁹ <https://www.inexhibit.com/case-studies/cctn-design-transforms-former-blast-furnace-in-beijing-into-a-museum/>

³⁰ <http://www.chinadaily.com.cn/a/201902/14/WS5c64c552a3106c65c34e940f.html>

law pertaining to the cultural realm, nor much academic attention is devoted to industrial heritage.

This is particularly the case in Kyiv and in Ukraine.³¹ Kyiv's two contemporary general plans do not accommodate industrial heritage preservation. The project of *General Plan 2040: Kyiv 2020*³² suggests relocation of poorly performing industrial enterprises outward from the city to its outskirts, and proposes renovating the vacated industrial sites. *General Plan 2025* proposes restoration of housing and civic functions adjacent to abandoned or poorly functioning industrial sites, but does not address the industrial sites themselves. Both plans understand industrial sites, as resources for new development, and as opportunities for dramatic spatial transformation. But these plans do not treat the potential historical, ecological, or social resources provided by extant industrial architecture and urbanism in Kyiv. Even the historical and architectural proposals within *General Plan 2040*, though acknowledging individual industrial structures, neglect to include industrial complexes and industrial landscapes as physical entities worthy of consideration.

Some industrial revitalization in Kyiv has been undertaken by private-sector actors. Such projects as Izolyatsia, UnitCity, Art-Zavod Platforma, the Bylshovyk retail and entertainment center (explained later in this study) have been constructed, but heritage is not always a consideration in these projects. What is perhaps Kyiv's best-known industrial heritage project, the Art Arsenal, is an exception in that architectural heritage was specifically considered and that the end use was cultural rather than for-profit.

National laws regarding revitalization and heritage in the industrial sector are rare as well. The National law called "Industrial Park"³³, realized in 2012, created a basic regulation for the creation of new economic functions with a combination of activities within industrial zones. However, few such industrial parks have been created in Kyiv, although many have been constructed in the suburban Kyivska oblast that surrounds Kyiv. The technopark "Bionic Hill"³⁴ is currently the sole industrial park in Kyiv constructed through state support. The project, which is currently frozen, aims to create a mixed-used area on around 60 Ha of a former military factory.

³¹ Since 2010 the Law of Ukraine "About Protection of Cultural Heritage" (Zakon Ukrainy pro okhoronu kulturnoi spadshchyny) has established to some extent, an alignment of Ukrainian policy with commonly practiced world cultural policy, in particular with the U.N. Convention Concerning the Protection of World Cultural and Natural Heritage. Although cultural heritage as an object obtained legal meaning in Ukraine, specific terms regarding industrial heritage were left out of this law. Furthermore, during the subsequent decade there was no effort to correct that omission. In contemporary planning practice, there are some examples in local architectural official documentation which designate monuments and outstanding industrial buildings. However, this practice is very limited and is not based on legal criteria at the national level.

³² This plan is not yet fully publicly available, so no reference can be provided.

³³ <https://zakon.rada.gov.ua/laws/show/5018-17>

³⁴ <http://bionic-hill.com/>

As a result of Ukraine's comparative inaction, the potential role of cities' post-industrial legacies in shaping and defining a city's identity, collective memory, and political history, is underdeveloped, as is the incorporation of those groups, often marginalized, who have been appreciating and occupying dilapidated industrial territories, into transformation processes. There are multiple reasons to acknowledge the value of post-socialist cities' industrial heritage. First, these urban fabrics have much to contribute to urban planning and urban studies research. Russian historian Boris Groys³⁵ has noted that this heritage has remained for many years in the "dustbin of history" and that it merits "rediscovery". Yet while industrialization dramatically reshaped most Soviet cities, forming in many case unique ensembles of architectural and urban patterns, both theorists and practitioners continue to lack sufficient knowledge of this legacy. Instead, this legacy is left to be treated by the market as a land reserve for future development projects.

A city's post-industrial legacy can also improve its citizens' sense of identity and belonging, thereby preserving and enhancing a city's symbolic quality, as Tweed and Sutherland³⁶ noted. Additionally, scholars have argued that the transformation of post-socialist cities' industrial plants can have a positive interpersonal effect³⁷ and shape a place's collective memory³⁸. Incorporating or assimilating this legacy is possible, but challenging, for cities in transition away from socialism³⁹. Collectively, this literature sees the post-totalitarian industrial landscape as an instrument to positively enhance the accommodation and understanding of a difficult past, so long as that legacy is valued and appreciated. Such a goal could be truly significant and meaningful for "monocities" in the ex-Soviet sphere, cities centered around a single industry now in decline or even vanished. Without assimilating their industrial past, what new urban identity can such cities have?

Urban industrial heritage is additionally valuable for new activities, social, and economic inclusion. It has been almost 60 years since Jane Jacobs first called for the retention of "old buildings" and of historic urban fabric in general, both for the economic and social sustenance and space for innovation that such fabrics provide.⁴⁰ Hatherley⁴¹ calls for attention to those spaces in post-Soviet cities that still have social meaning. Affordable former industrial spaces

³⁵ Groys, Boris. *Art Power*. Cambridge: MIT Press, 2008.

³⁶ Tweed, Christopher, and Margaret Sutherland. "Built cultural heritage and sustainable urban development." *Landscape and Urban Planning* 83, no. 1 (2007): 62-69.

³⁷ Evans, Graeme. "Measure for measure: Evaluating the evidence of culture's contribution to regeneration." *Urban studies* 42, no. 5-6 (2005): 959-983.

³⁸ Polyák, Levente. "Recycling the Industrial between West and East." *Industrial Heritage Sites in Transformation: Clash of Discourses* 6 (2014): 167.

³⁹ Czepczynski, Mariusz. "Interpreting post-socialist icons: from pride and hate towards disappearance and/or assimilation." *Human Geographies* 4, no. 1 (2010): 67.

⁴⁰ Jacobs, Jane. *The Death and Life of Great American Cities*. Random House, New York, 1961.

⁴¹ Hatherley, Owen. *Militant Modernism*. London: John Hunt Publishing, 2009. P. 130. Russian edition.

often possess such meaning for citizen initiatives and start-ups, particularly in small cities⁴² where land has low value and industrial property owners are derelict or absent. Even if Ukrainian law does not acknowledge Soviet-era industrial heritage, this does not mean that such heritage is not appreciated by artists' communities and by local youth. The preservation of these industrial areas' activities, spaces and economic and cultural qualities could be a practical instrument for creating social diversity as these neighborhoods evolve.

All in all, preservation of Soviet-era industrial sites presents many opportunities: to improve understanding and to come to terms with the past, to create an urban identity, to provide greater social equality and embrace citizen creativity. This is not to diminish the more conventional values-very high esthetic and spatial qualities, and a high level of affordability- that collectively argue for creative approaches to the transformation of this significant legacy of state socialism.

This study was motivated by an appreciation of Kyiv's significant Soviet industrial heritage, a heritage shared by many other cities in Ukraine and the former Soviet Union, and by the concern that regressive contemporary city-building processes threaten to demolish many of these Soviet-era structures and environments. The benevolent neglect of the post-Soviet era can last only so long; America's negative preservation experience with 20C industrial heritage indicates that without active use and appreciation of these structures, they will be removed and eventually vanish from the physical fabric, much as they have in places like Flint and Youngstown.⁴³ With elements of such transformation already underway in Kyiv, an enhanced understanding of the history, current conditions, and changes occurring to Kyiv's industrial districts, most of which are little known outside of the former Soviet Union⁴⁴, is urgent. It is this lacuna in both the English and Ukrainian-language literature that this study hopes to address.

This study has three parts. We first detail the architectural and planning history of Kyiv's industrial districts. These districts originated in Russia's 19C imperial-era industrialization, but were vastly expanded or created *de novo* under the Soviet Union's five-year national economic plans (beginning 1928-33), in tandem with citywide general plans produced for Kyiv in 1936 and 1947. Coming before and after the very destructive Second World War⁴⁵, these general plans proposed large expansions of the city's industrial plant. During the ensuing decades, much of this industrial plant was constructed according to plan, producing a substantial landscape of industrial

⁴² <https://issuu.com/urbancurators/docs/kostiantynivka>

⁴³ Redacted, 2012

⁴⁴ The authors found only one reference to Ukraine's general plans and industrial heritage: Eroshalov-Pilipchuk, B., *The architecture of Soviet Kyiv* (A+S), 2010:95-100

⁴⁵ Ukraine was occupied by the Nazis during WW2 for up to three years. WW2 killed up to seven million people in Ukraine and left most of its cities heavily damaged. Roman Cybriwsky's work provides some context. Cybriwsky, R., *Kyiv, Ukraine: the city of domes and demons from the collapse of socialism to the mass uprising of 2013-2014*. Amsterdam University Press, 2016.

districts dotted around the city, and concentrated along waterfronts and along railway lines. The second part of this study provides profiles of development histories of five enterprises in Kyiv's largest industrial districts before describing the transformations of these enterprises since 1991⁴⁶ (Table 1). These plants have experienced divergent fates. Parts of many have been replaced, but none have been completely demolished. Many areas of these districts remain vacant, while other areas are proposed for redevelopment that has not yet occurred. In other words, much of Kyiv's Soviet industrial legacy is lost, but time yet remains for much of this legacy to be rehabilitated and potentially restored. The third section of this study discusses how such rehabilitation of Soviet industrial heritage might occur, in a city with emerging but still-weak planning regulations and a nascent civil society. We propose three design and planning strategies through documentation of emerging case studies in Kyiv. Our research aim is to document Kyiv's striking planning and industrial heritage, and to increase awareness, occupation, and ultimately rehabilitation of the city's industrial districts. This study is ultimately intended to evidence and advocate for the striking architectural qualities and unique urban character of Kyiv's Soviet-era industrial districts, and for their preservation as testimony to an important aspect of Soviet Ukrainian to Soviet planning and architectural history.

[Table 1 goes about here]

Kyiv and the 1936 general plan

During Soviet times, significant transformations of Kyiv's industrial landscape occurred through the siting of industrial districts and the placement of new socialist enterprises within them. However, the core of many of Kyiv's industrial districts was formed in the prerevolutionary capitalist era, when Ukraine was under the governance of the Russian Empire. This study first recounts the development history of industrial production in prerevolutionary Kyiv. Following this, the paper describes changes occurring in Kyiv's industry after the 1917 Russian Revolution, particularly those proposals for industrial development declared in the *general plan for Reconstruction in Kyiv* of 1936 (hereafter, the 1936 general plan)⁴⁷. The paper then provides a detailed examination of this history and planning of five enterprises within the largest industrial areas proclaimed in the 1936 and follow-up 1947 general plans, including their origins in Soviet industrial planning and their transformations since Ukrainian independence and the return of capitalism in 1991.

Prerevolutionary Kyiv (pre-1917)

⁴⁶ See Table 1. There were seven industrial districts in 1936 and five in the 1947 general plan. We research in detail five industrial enterprises or plants that are situated in different industrial districts, and that themselves are smaller than districts. By the term 'district', we signify what Soviet planners considered as a district: a city area where multiple industrial enterprises are located.

⁴⁷ *general plan for Reconstruction in Kyiv*, 1936 reference.

Prerevolutionary Kyiv was a craft industry city, famous for its unique products. Iyevleva pointed out characteristic features of the city's industrial complex at the turn of the century, such as continuous increases in the volume and diversification of industrial production⁴⁸. She also mentioned the emergence of such exotic manufactures as companies producing vinyl records, oak extracts, and artificial ice. By 1912 the number of craftsmen in Kyiv was approximately 30,000 and comprised 60 specialties, exceeding the number of workers in factories by about twofold⁴⁹. As Ukraine was a primary grain producer for the Russian Empire, about 62% of all factories were occupied by the food industry, where mills produced almost half of the city's total production. In 1912 there were 10 such mills in Kyiv.^{50,51}

The architecture and urban planning of Imperial-era Kyiv up to 1917 were largely determined by the city's vibrant, but only lightly regulated, economic system, together with its political situation as a subsidiary province of Russia. The city's hilly topography, lack of state ownership of land and limited urban regulations for the placement of enterprises led to building locations being determined predominantly by landowners, resulting in a chaotic, fragmented urban pattern. The high price of land leasing for entrepreneurs forced them to place production in small parcels in the city area, sometimes very near to housing, or on the city's outskirts, where land was cheaper but access more difficult.⁵² Another factor shaping development was the existence and proximity of water and rail transport. Overall, Kyiv's historic development pattern, with palaces and monasteries on hilltops surrounded by residential development, dominated the shape of the city. Industrial enterprises played a secondary, infill spatial role along rail lines in the city's valleys and along the Dnipro waterfront.

Soviet Kyiv (1917-1991) and the 1936 general plan

After a brief period of Ukrainian independence during the Russian Civil War (1918-1919), Kyiv became part of the constituent "republic" of Ukraine within the Soviet Union. The Soviet era, which lasted over 70 years, reshaped Kyiv from a craft-based, trading, lightly industrialized city into an industrial engine of the Soviet empire. After the October Revolution (1917), Soviet Kyiv began transforming into an industrial city where the food industry was no longer primary, giving way to machine-building, metallurgy, and construction. Almost all of contemporary Kyiv's industrial areas were decreed in the Soviet era during the nation's first two five-year plans (1928-32 and 1933-37). Prerevolutionary industrial areas were demolished or, if

⁴⁸ Iyevleva, V. *Landmarks of Kyiv's Industrial Development*, (Press-CET), 2008

⁴⁹ Rodin, I., "The industry of Soviet Kyiv", *Socialist Kyiv*, no. 10, 1937:17-21

⁵⁰ Lipkes, I., Rodin, I., "Perspectives of industrial development of the capital", *Socialist Kyiv*, no 5, (1936): 3-7.

⁵¹ Rodin, I., "The industry of Soviet Kyiv", *Socialist Kyiv*, no. 10, 1937:17-21

⁵² Publishing House of the Academy of Architecture of the USSR, *Architecture of Ukraine, 1954*: 80

they remained, were appended to and altered; only a few buildings preserved their prerevolutionary form.⁵³

In 1919 Kyiv lost its status as capital when Kharkiv (Russian *Kharkov*) was declared the new capital of the Ukrainian Socialist Soviet Republic. By 1934, when Kyiv superseded Kharkiv to again become capital, the city was still developing according to "Temporary Building Regulations" by Pavel Khaustov⁵⁴, where industrial enterprises were marked *post factum*. There was as yet no general plan for the location of industry: industrial enterprises were located on an individual basis, and factory placement decisions were not coordinated with each other.⁵⁵, ⁵⁶ Despite this relatively chaotic planning, from an architectural point of view the 1919-1934 period is perhaps the most interesting period of Kyiv's industrial development, since it was during that time that most constructivist-style industrial enterprises were built.⁵⁷ Among the constructivist industrial structures built during this period were the "KRES" Kyiv district electrical power station, the "10 years of Komsomol" IV Shoe factory⁵⁸, the Rosa Kyiv Factory of Knitted Garments, bread-baking plant Number 4, and the Kyiv Film Factory (Figure 2).

Following Kyiv's redesignation as Ukraine's capital, the task emerged of developing a Kyiv general plan, the city's first, to outline development objectives. This first general plan was created toward the end of the second national five-year plan in 1936. It was developed in just six months and approved after only 2 days of review. The 1936 general plan proclaimed the city's development vector only five years into the future, but fixed Kyiv's course as an "exemplary socialistic city with industrial and transport value"⁵⁹.

⁵³ One prerevolutionary survival is the Art Arsenal in Kyiv's city center: <https://artarsenal.in.ua/>

⁵⁴ Khaustov was an architect who was author of Kyiv's 1936 general plan.

⁵⁵ This is not to say that parts of Kyiv had not previously experienced urban design, in the sense of a town plat analogous to those shown in Reps (1964): Podil district was platted as a grid in 1812 after a major fire. This grid was developed by Geste and Miletsky.

⁵⁶ 19th century Kyiv did have building and open space regulations, but they did not apply to industry. Such regulations controlled the city's street network, public green space (squares and parks), main public amenities and fortifications, but not did not treat factories or industry. Source: Кальницький, М. Б. "Забудова Києва доби класичного капіталізму." *К.: Варто* (2012). Page 80.

⁵⁷ Constructivist architecture in Ukraine was concentrated in Kharkiv, which as previously noted was capital from 1919 to 1934, and in Zaporizhia, which was Ukraine's 'model' industrial city constructed alongside the Dnipro river dam, begun in 1927. See "Bauhaus - Zaporizhzhia" project for a survey of constructivist architecture in this city. <http://theconstructivistproject.com/>. The project was organized by Consulate General of the Federal Republic of Germany in Donetsk (office in Dnipro) in partnership with the NGO Urban Forms Center, Barannik contemporary art gallery and Professor Thomas Flierl (Germany).

⁵⁸ Golovko, G, *Essays on the history of architecture of the Ukrainian SSR: the Soviet period*, State publishing house of USSR, 1962:351

⁵⁹ *The Explanatory Note to the 1936 general plan*, 1936:82 (Source: Tsentral'nyi derzhavnyi archive of gromaskyh organizatsui Ukrainy/Central State Archives of Public Organizations of Ukraine). While the 1936 general plan was projected to be implemented within five years, in keeping with the five-year-plan mentality of Communism, this was not the case, and many works projected in this plan were never implemented at all. That being said, the effect of the 1936 Plan on the industrial fabric of Kyiv was long-lasting.

Planning was a secretive activity in the Soviet Union. As land and economic activity was controlled by the state, planning was not the guide for market forces that it is considered today in capitalist countries. Instead, the general plan was just that: a centrally-organized, conceived, and administered declaration of the location, content, and building form of state constructions.⁶⁰ The Soviet state had little motive to share such planning intentions with its population, since civil and property rights were not significant factors in the Soviet Union, so plans mostly remained secret. These top-down planning initiatives were technocratic in nature: plans were created and implemented by experts in planning institutes, which possessed monopolies on plan-making and plan administration.

Accordingly, Soviet general plan documents are difficult to find, even in today's post-Soviet era. For our study, we were able to locate a folio of images from the 1936 general plan⁶¹, but we were unable to locate the original documents of the 1947 general plan⁶². The 1936 folio was located in the Central State Archives of Public Organizations of Ukraine (Tsentral'nyi derzhavnyi archive of gromaskyh organizatsui Ukrainy). This document was an A2 album by size and collected 12 schemes in around A0 format, organized by content. Part of the Explanatory Note to the 1947 general plan was identified for purchase in a different archive, but full explanatory reports for the general plan of 1947 were not available to the public in either the state and local archives of Ukraine, nor could they be located in any of the institutions that once supervised general planning in Kyiv, including the Kyiv City Council⁶³, Dipromisto⁶⁴; or Kyivgenplan⁶⁵. Ultimately, we were able to reconstruct general plan intentions for Kyiv's industrial districts from the "Explanatory Note" of the 1936 general plan⁶⁶, and expert reports and part of the Explanatory Note for the 1947 general plan. Additionally, articles published in the

⁶⁰ Underhill, J. A. (1990) provides a fuller, if somewhat dated, assessment of Soviet physical planning in the context of the nation's new town program in "Soviet new towns, planning and national urban policy: shaping the face of Soviet cities." *Town Planning Review*, 61(3), 263.

⁶¹ *The general plan for reconstruction of Kyiv. An administration of architecture and planning*, 1936. Source: Tsentral'nyi derzhavnyi archive of gromaskyh organizatsui Ukrainy/Central State Archives of Public Organizations of Ukraine, f. 1, o.23, d. 2641

⁶² 1947 general plan citation.

⁶³ This institution is today known as the Department of Urban Development and Architecture of the Kyiv City Council. The visual portion of the 1936 plan was created by the Architectural and Planning Department of the Executive Body of the City Council (Arkhitekturno Planuvalne upravlinnia miskrady).

⁶⁴ Dipromisto is a plan-creation agency, founded in the Soviet Union, to provide general plans for cities in Ukrainian SSR, today's independent Ukraine. Dipromisto still fulfills this function to some extent. <http://dipromisto.gov.ua/>

⁶⁵ This institute is called 'Kyivvgenplan', a name that clearly denotes its origin as a plan-creation and –supervisory organization. Though still possessing statutory power to supervise Kyiv's planning, Kyivgenplan is today politically marginalized by the Department of Urban Development and Architecture.

⁶⁶ Other portions of this explanatory Note were identified in a personal archive in Kyiv (owner wished to remain confidential).

magazines *Socialist Kyiv* and *Soviet Ukrainian Architecture*, an album with graphic materials⁶⁷, and electronic versions of the 1947 plan's principal pages⁶⁸ provided additional information.

1936 general plan proposals

The 1936 plan contents included an assessment of the city's condition before reconstruction and a criticism of this condition, together with a list of planned industrial enterprises, locations for the greater part of these enterprises, a zoning plan, the projected sizes of potential industrial areas, and additional separate folio sheets, or 'detail plans', for selected city districts.

Soviet planners generally critiqued the form of cities constructed during Russia's pre-revolutionary capitalist era, and Kyiv's planners were no exception. The planners for "new socialist Kyiv", which included Pavel Khaustov (author of the earlier "Temporary Rules for the Reconstruction of Kyiv"⁶⁹), and other planners like G. Golovko, V. Grechina, P. Yurchenko, I. Rodin, N. Gelstein, I. and I. Lipkes, had actively criticized the pre-revolutionary city form of Kyiv in previous articles published in Ukrainian architecture magazines⁷⁰. These critiques of Czarist-era Kyiv were incorporated into the language of the 1936 general plan. Khaustov's language was typical, excoriating the laissez-faire development of the czarist era: "The proletariat inherited a badly organized city territory. To a large extent, this is due not only to the fact that the capitalist planning of Kyiv passively adapted to the relief [city topography], but also to the whole historical development of the city"⁷¹. This critical position was supported by many of Kyiv's intelligentsia. O. Simzen-Sychevsky, a historian and researcher, argued in 1938 that "in the feudal and capitalist times the city growth and development of Kyiv proceeded spontaneously, corresponding only with the landscape, [and] with the military and economic needs of that moment, while excluding even the smallest concerns about the interests of the population of working masses."⁷²

The 1936 general plan highlighted several "shortcomings" of the existing city form of Kyiv. The city fabric, and the location of industrial plants within it, were chaotic; the location of industrial enterprises adjacent to residential areas was problematic, causing environmental hazards; the city's population was itself overly dense⁷³; transportation connections and road

⁶⁷ <http://tsdavo.gov.ua/> (Tsentral'nyi derzhavnyi archive of gromaskyh organizatsui Ukrainy/Central State Archives of Public Organizations of Ukraine).

⁶⁸ <http://genplan.kiev.ua/ist.htm>

⁶⁹ This document is referred to in contemporary texts of 1936, but no reference for this document is available.

⁷⁰ Khaustov, P. "Plan socialistychnoy perebidovy/The plan for socialist transformation", *Socialist Kyiv*, n.1, 1936

⁷¹ Khaustov, P. "Plan socialistychnoy perebidovy/The plan for socialist transformation", *Socialist Kyiv*, n.1, 1936

⁷² Simzen-Sychevsky, O., "History of Kyiv's development and planning in the prerevolutionary period", *Architecture of Soviet Ukraine*, n.4-5, 1934

⁷³ High population densities in Kyiv were less a consequence of prerevolutionary, capitalist development than they were the consequence of high birth rates and a very low level of housing production in the 1920s. This problem was

capacity were weak⁷⁴; the existing utility system of electricity and water was poor; and there was a lack of green areas and park space, with existing green areas being in poor condition⁷⁵.

Responding to these perceived shortcomings, the 1936 general plan provided a response and a solution through a new physical plan for Kyiv (Figure 3). The plan constituted a substantial reorganization of the city's physical structure in terms of land use separation, proposals for new industrial facilities, density shifts, transportation frameworks⁷⁶, city utilities, and open space provision and distribution. In terms of land use, the 1936 plan established city zoning districts, organized as industrial, dwelling, public and administrative, office, trade and entertainment.⁷⁷ Industry was foundationally reorganized, with new plants located in discrete industrial districts instead of scattered within the existing city, as before. The plan proposed relocation of existing industrial plants from the city center and high-density residential areas to these newly created industrial districts, many of which were at the city outskirts. Initiating an agenda for housing reform that would endure throughout the Soviet era, the plan proposed decreasing the city's residential density from 800 people per hectare to 400 people per hectare. The grandest conception of the plan was in its proclamation of Kyiv as a "Garden City", composed of inner and outer city green areas with parks, boulevards, dachas, garden squares, green buffer zones between industrial areas and dwellings, and even the landscaping of industrial territories (Figure 4 and Figure 5).

Kyiv's 1936 plan, while created within the highly hermetic confines of the Stalinist Soviet Union, shows clear analogies to contemporary plans being proposed for capitalist cities in the United States and Great Britain.⁷⁸ 1936 general plan ideas like enlarged roadways, segregated land uses, lower-density residential areas, and greenbelts are consistent with the ideals of planners like Patrick Abercrombie⁷⁹, John Nolen⁸⁰, and Clarence Stein⁸¹. While professional contacts between capitalist planners and Ukraine's planners were unlikely, the conceptual links between plan ideas is clear. Today, this first general plan for Kyiv is held in esteem by contemporary scholars, who have deemed the plan to be beautiful and ambitious, if sadly underrealized. For instance, architect B. Eroshov observed that "from the architectural point of

common across the Soviet Union; Moscow in the late 1920s was one of the most crowded cities in the world (Colton, T.J., *Moscow: Governing the socialist metropolis*. Vol. 88. Harvard University Press, 1995).

⁷⁴ Dibovsky, N. "An economic prerequisite of general plan for Kyiv", *Socialist Kyiv, n.1, 1936*

⁷⁵ Architect I. Rochnyak argued that 70% of existing green areas did not conform to city council standards (Rochnyak, I. "The garden city. The general plan for greenery city", *Socialist Kyiv, n.1, 1936*).

⁷⁶ According to Iyevleva 2008, in 1913 almost all districts already had tram lines.

⁷⁷ Khaustov, P. (1934). "Contours of the future of Kiev. On the development of the city general plan." *Construction: Ukrainian scientific and technical building magazine, no. 6, 1934: 5-7*.

⁷⁸ E.g. Forshaw, J. H., & Abercrombie, P. (1943). *County of London plan*. Macmillan and Company limited.

⁷⁹ *Ibid.*

⁸⁰ Nolen's ideas are well explored in Rogers, M. F. (2001). *John Nolen and Mariemont: Building a New Town in Ohio*. JHU Press.

⁸¹ Stein, C. S. (1957). *Toward new towns for America*. Reinhold Publishing Corporation.

view the general plan has absolutist and classicist intentions, [but these intentions] turned out to be realized only to a small extent."⁸² Some of the 1936 general plan's implementation difficulties may have related to the difficult, hilly site of historic Kyiv as well as to the city's topographical incompatibility with Soviet planning standards, which preferred tabula rasa, expansive locations.

The plan authors seemed to hold a paradoxical position about the value of Kyiv's hilly landscape. Principal plan author Khaustov stated that Kyiv's scenery was an important value, but at the same time, that this topography was the biggest obstacle for the city's development:

"The capital of Ukraine is located in an extremely picturesque but also very complex terrain in terms of relief. This scenery is the biggest lure of Kyiv... [but] there are natural obstacles for city development. There are [the] Dnieper [River], Kyiv hills, [and] areas with high level of groundwater. The Lybid valley⁸³ is an obstacle for city development too, and calls for construction work and earthworks."⁸⁴

Given the difficulties of this terrain, it is not surprising that Soviet planners saw Kyiv's left bank – in 1936 an agricultural floodplain located across the Dnipro from the existing city– as a tempting terra incognita. This floodplain more closely fit Soviet planning ideals of an empty, flat landscape, and the left bank would serve as the principal site for many new industrial districts, together with most of the city's residential districts, in the fifty-plus years of Soviet planning following 1936.

Soviet Kyiv's industrial districts and Kyiv's general plans

In 1935, Kyiv had 150 state enterprises and almost as many handicraft enterprises and other organizations. These industries employed about 77,000 people, of whom about 56,000 were workers^{85, 86} (Figure 6). The city had nine industrial districts in total. These districts each contained industrial enterprises of mainly one type of production and occupied 870 hectares of the city's territory in total.⁸⁷

[Figure 6 goes about here]

⁸² Eroshalov-Pilipchuk, B., *The architecture of Soviet Kyiv (A+S)*, 2010:95-100

⁸³ This small river adjacent to central Kyiv is adjacent to the city's rail station, explained later in this paper.

⁸⁴ Khaustov, P. (1934). *Contours of the future of Kiev. On the development of the city general plan. Construction: Ukrainian scientific and technical building magazine, no. 6, 1934: 5-7.*

⁸⁵ Here, the total number of employees denotes the general number of people involved in the industry. The term 'workers' refers to those who performed manual labor in the industrial pavilions or shops. Others employees who were not 'workers' include administrators, the so-called white-collar employees.

⁸⁶ *The extract from the explanatory report to the general plan for the reconstruction of Kyiv, 1936.* Source: Tsentral'nyi derzhavnyi archive-musei literatury i mistetstva/Central State Archive and Museum of Literature and Art of Ukraine

⁸⁷ *Ibid.*

The 1936 general plan comprehensively examined the condition of Kyiv's industrial districts as they existed in 1935. Judging by the number of its industrial enterprises, Kyiv's Central District was a bustling area. The district had 24 industrial enterprises, crowded onto only eight hectares. However, most industry in Kyiv was located in a variety of other industrial areas located at the city periphery, almost all on the right bank adjacent to the historic center (Table 1). In 1935, on the comparatively underdeveloped left bank of the city in the Darnytsky district, 370 hectares were already occupied or designated for industrial construction. The vast scale of Darnytsky, larger than Kyiv's other industrial districts combined, reflected the scale of industrial development possible in this as-yet underbuilt, yet highly accessible, area of the city. In the north part of Kyiv along the Dnipro, the Petrivsko [Podilsko]-Kurenivskyy district and Priorka districts had the largest number of industrial enterprises, 51 in all, occupying 128 hectares. The 1936 general plan projected this district to have a projected 300 hectares, which would have made it the second-largest industrial area on the right bank and the third largest industrial district in the city.⁸⁸ Even before the 1936 general plan was issued, the Kurenivskyy district possessed important enterprises like the Kyiv Shipbuilding Shipyard and Ship Repair Plant, the Lenin Forge⁸⁹, and the Kyiv Leather Factory. The 1936 general plan located additional important industries there by transferring existing enterprises from the city center to new facilities in the district. The 1936 general plan also provided a detail plan of Petrivsko [Podilsko]-Kurenivskyy district principally authored by N. Gelstein, and a project for reconstruction of Kyiv's river port that we will examine further below (Figure 7).⁹⁰

Industrial districts in the 1936 general plan

Industrial development was a priority of the Soviet Union's five-year plans: as Vice-Chairman of State Planning Grigoriy Grinko stated, "the pivotal part of the [first] entire Five-Year Plan [is to] make considerable progress in the conversion of the Soviet Union from a primarily agrarian to a predominantly industrial country."⁹¹ Accordingly, in Kyiv's 1936 general plan construction of housing, roads, and utility networks were all subordinate to acceleration of Kyiv's industrialization. The 1936 general plan organized and concentrated Kyiv's industrial enterprises in six districts, the scale of which was substantially larger than the existing industrial districts of 1935. The delineation of some of these districts even required expanding the city's municipal limits. Six districts for industrial enterprises were proposed in the plan (Figure 8 and Table 2). The plan also proposed four additional, principally residential districts. Today, three of

⁸⁸ This district has been further enlarged since 1936: today (2019) Kyiv's current general plan states that Kurenivskyy occupies 782 hectares. *The general plan for Kyiv development for 2020*. Center for Urban Development and Architecture in Kyiv.

⁸⁹ The Lenin Forge works was under construction in 1930, as explained later in this paper.

⁹⁰ Helshstein, N., "Nova Petrivka/New Petrivka", *Socialist Kyiv*, no. 1, 1936:35-37

⁹¹ V.T. Grinko, *The Five-Year Plan of the Soviet Union: A political interpretation*. (n.d., c.1930) London: Martin Lawrence Limited. P. 57.

the six 1936 industrial districts- Petrivsko [Podilsko]-Kurenivskyy, Telychansko-Korchevatyy and Darnytskyy- are the largest in Kyiv. Though the form of these districts is not identical to that proposed in the plan, their scale today shows the 1936 general plan's substantial influence on industrial development.

[Figure 8 goes about here]

[Table 2 goes about here]

The scale of the plan's projected industrial districts, shown in Figure 8, was ambitious. The largest industrial zone in the city, on the lightly occupied Left Bank, would be the conjoined Darnytskyy and Nikolsko-Brovarsky districts, together comprising 700 hectares. On the right bank adjacent to the old city, the planners proposed the largest single district of all, Telychansko-Korchuvatyy with 400 hectares, for hazardous activities such as woodworking, oil and gas plants. The Petrivsko [Podilsko]-Kurenivskyy district, also on the right bank, was designated for chemical and light manufacturing enterprises on 300 hectares. Part of another district on the right bank was designated for 78 hectares of machine-building enterprises that were to be moved from the city center, while yet another district projected 65 hectares for industrial needs.

Ultimately, the 1936 plan nearly doubled the area dedicated to industry in Kyiv, from 870 to 1620 Ha. Almost 95% of the city's industrial enterprises were to be located in the six districts proposed in the plan.⁹² This wholesale centralization and aggregation of Kyiv's dispersed industrial activity was to be achieved by the tripartite strategy of constructing new industry within the plan's six designated industrial districts, the transferring of industrial enterprises from other districts that could be redeveloped, the transferring of additional enterprises beyond the city limits entirely, and eliminating entire smaller industrial districts adjacent to residential neighborhoods, thereby permitting those neighborhoods' expansion.

The Hlybochytsko-Lukyanivska industrial district on the right bank was a typical example of such consolidation. This smaller industrial district of 8.9 Ha was proposed to be eliminated due to its "unacceptably adverse effects" on the adjoining residential areas.⁹³ The 1936 plan likewise proposed two other right-bank industrial districts for elimination as well. Overall, the 1936 general plan projected that during the third Five-Year Plan, foreseen for 1938 to 1943, that 38 new industrial enterprises would be constructed and that 40 to 46 enterprises would be removed from the central part of the city. Ultimately, the 1936 plan projected a total of 44 industrial districts in Kyiv, 38 of which were new, and 6 of which were already existing.

⁹² *The extract from the explanatory report to the general plan for Reconstruction in Kyiv, 1936.* Source: Tsentral'nyi derzhanvyi archive-musei literatury i mistetstva/Central State Archive and Museum of Literature and Art of Ukraine

⁹³ Khaustov, P. (1934). Contours of the future of Kiev. On the development of the city general plan. Construction: Ukrainian scientific and technical building magazine, no. 6, 1934: 5-7.

Detail plans in the 1936 general plan

The drawings that comprised the graphic content of the 1936 general plan contained several detail or area plans showing projected urban development for selected city districts.^{94,95} These included a general plan for reconstruction of the Petrivsko [Podilsko]-Kurenivskyy District along the Dnipro riverbank in the central city, with a river port reconstruction project as a subarea and a plan for the left bank Darnytskyy/Nikolsko-Brovarskyy districts. The general plan also provided projects and schematic plans for three other districts.⁹⁶ Below, we briefly describe industrial district detail plans for two of the largest industrial districts, Petrivsko [Podilsko]-Kurenivskyy and Darnytskyy/Nikolsko-Brovarskyy, highlighting the principal propositions of these ‘subplans’.

The Petrivsko [Podilsko]-Kurenivskyy district, formerly a mixed-use residential, commercial, and industrial area, was to be reorganized along segregated land-use patterns (Figure 7). The general plan for the reconstruction of this district envisioned a functional division of the entire territory into discrete zones: an industrial main zone, a railway transport zone, a cultural services network, and “orderly” greenfield sites and water spaces. According to this general plan, the industrial zone was to be concentrated along a major street. These industries were separated from residential areas by a railway dam, which also protected this low-lying area from floods. Petrivka, the territory in the port area together with the Rybalsky Peninsula, was projected by the general plan to be, together with the Kurenivka area, the main industrial center of the district.

The Darnytskyy and Nikolsko-Brovarskyy industrial districts, as previously noted, occupied a large area of the Dnipro left bank. This area was projected by the general plan to become one of the most developed districts of the city. In 1936 the district already had substantial activity, according to the general plan; there was a carriage-repair plant already under construction, a meat-packing plant being reconstructed, a wood-chemical industry expanding, and a large-scale railway junction being created. The relatively flat landscape, sandy soil and a wooded, green area available for adjacent residential construction made the area appealing for

⁹⁴ Soviet general plans typically center around large-scale drawings of the projected futures of the city or district concerned. These ‘plan drawings’ bear some similarity to United States general plans of the early 20C, in which the “general plan” was both a plan drawing of the projected future, and a document that explained the ideas of said drawing. Edward Bennett’s *Plan for Minneapolis* (1917) is a typical example. Soviet general plans, however, were secret, and any textual document associated with the plan drawing(s) was typically not shared with the public, and may remain inaccessible even today. Kyiv’s 1936 may thus be understood as comprising a series of ‘sheets’ with plan drawings of projected futures for Kyiv and for specific districts within Kyiv.

⁹⁵ The 1936 detail plans were comprised of 3 sheets for industrial districts, 1 sheet for the central district, 1 sheet for 2 streets, Bulevar Shcevnepko (city center) and Kyrylinska (industrial). The presence of additional detail plans cannot be confirmed due the plan’s only partially public nature. In fact, it is difficult to call these a detail plans, as they are actually enlargements of parts of sheets from the 1936 general plan. Today, for reference, the next document down in scale from the general plan is called a DPT (detail project for the territory).

⁹⁶ These were the Livoberezhnyy district, the Zhovtnevo-Svyatoshinskyy district; and the Stalinskyy central district.

additional growth. The 1936 plan projected the construction of 3 industrial plants in these districts: a rubber plant of 40 hectares, a linen factory or complex of textile enterprises (40 hectares), and the “Darnytskyy” carriage repair plant. Of the three planned enterprises, only the Darnytskyy carriage repair plant was brought into operation. Darnytskyy would become the largest enterprise in Kyiv with a workforce of 9,000 people, but the construction of the other enterprises never occurred.

The general plan of 1947

After the devastation caused by the Nazi invasion and occupation of Ukraine during World War II, Kyiv’s industry was ~~fully~~ restored within four years and new branches of industry also made their appearance. In 1947 a postwar general plan was issued that projected the city’s development up to 1960/65. This plan (Figure 9) strengthened the city’s role as an industrial center, an effort that had begun under the first general plan of 1936. The 1947 plan project team consisted of Alexander Vlasov, Boris Priymak, and I. I. Malozyomov among others. These planners proclaimed the new, rebuilt Kyiv to be a complex of industrial and transport enterprises, residential areas, a rebuilt and heavily monumental city center, and widened street arteries.⁹⁷ The 1947 general plan stated that its agenda for industrial enterprise development was motivated by population growth, by the necessity to increase production capacity, and by a desire to improve the environmental situation in the city. In response to these goals, the plan projected an ambitious industrial agenda to remove harmful industrial enterprises to areas outside the city, and to relocate several former inner-city enterprises in five consolidated industrial districts (down from six districts in the 1936 general plan). These districts would also house additional enterprises (Table 1).

To some extent, the 1947 general plan corrected constructed elements of the 1936 general plan that had become obsolete or problematic. In an era of rapid population growth, industry that had been at the periphery of Kyiv a decade earlier was now enveloped by rapid metropolitan growth, motivating its removal in order to permit future growth of those industries in the event of expansion, and the separation of industrial land uses from residential areas. For example, the foundry shop of the Gorky machine-tool works, projected by the general plan of 1936 and then constructed, was projected by the 1947 general plan to be relocated from its initial site to an area outside the city. Other proposed industrial relocations doubtless referred to pre-1936 industrial districts whose previously recommended removal had not yet been implemented by the time of World War II. Overall, the 1947 plan proposed that 31 industrial enterprises relocate far from residential areas.⁹⁸ This second wave of relocated factories, many of which had been created only

⁹⁷ The experts report about the 1947 general plan for Kyiv. Source: Tsentral’nyi derzhanvyi istoruchnyi archive/Central State Historical Archive of Ukraine, f.p4906, o.1, d.2707

⁹⁸ The experts report about the 1947 general plan for Kyiv. Source: Tsentral’nyi derzhanvyi istoruchnyi archive/Central State Historical Archive of Ukraine, f.p4906, o.1, d.2707. The stated number of 31 enterprises to be

within the previous ten years, illustrated the difficulty of planning for heavy industry in a rapidly growing city.

Consistent with Soviet concepts of aggregation and efficiency, the 1947 general plan reduced industrial production in Kyiv to five districts. Among these were the three large districts mentioned earlier, Petrivsko [Podilsko]-Kurenivskyy, Nikolsko-Brovarskyy, and Darnytskyy, plus two others (Table 1). Four of these industrial districts remained from the 1936 general plan, while a fifth district, Demyivka, was newly designated.

Within these districts, new industrial areas were mostly located along the Dnipro river and along Brest-Litovsk Avenue (renamed Peremohy or “Victory” Boulevard in 1985). Brest-Litovsk is a major avenue leading westward from Kyiv, eventually arriving in Lviv, a major city in western Ukraine. Given the southward flow of the Dnipro and the existence of river pollution, the 1947 plan was sensitive to the placement of industrial enterprises along the river, as emphasized by a team of experts of the general plan of 1947 in their official report.⁹⁹ The possibility of industrial waste flowing past the city made the location of additional industrial areas on the north of the city undesirable, and instead encouraged the implementation of new industrial areas toward the south of the city (i.e. downstream). Ultimately, an industrial area projected to the north of the existing Lenin Forge works, in the Podil neighborhood near the city center, was not constructed. This area was ultimately occupied instead by the large-scale Obolon rayon, or residential district, constructed in the 1950s and 1960s. To the south of the city center, the Telychansko-Korchuvatyy industrial district was constructed, growing rapidly (eventually more than doubling in size) following the issuance of the 1947 general plan. Today, this is one of the largest industrial districts in Kyiv.

Kyiv’s industrial districts today: tales of transformation

How have Kyiv’s industrial districts transformed since their formation during the early industrialization of the Soviet Union? In particular, how have these districts transformed since the independence of Ukraine from the Soviet Union in 1991, and the development of a capitalist economy in what was a wholly socialist city? Across Ukraine and the former Soviet Union, transformation of industry has been dramatic. The imposition of borders in what was formerly a unified command economy, and the imposition of market logic in what was formerly a planned economic system, has resulted in the diminution, obsolescence, and disappearance of many industries- a form of economic shock analogous to that which occurred in the United States and Northern Europe beginning in the 1970s. Other Ukrainian industrial enterprises have survived,

relocated comprises almost the total number of listed enterprises in the 1936 general plan and is perhaps an error. However, there is no list of enterprises that would permit confirmation of the stated 31 enterprises.

⁹⁹ *The experts report about the 1947 general plan for Kyiv*. Source: Tsentral’nyi derzhanvyi istoruchnyi archive/Central State Historical Archive of Ukraine, f.p4906, o.1, d.2707

though with often reduced activity. This overall decline in industrial economies has been devastating for smaller Ukrainian cities, many of which live today with substantial brownfields and large, mostly abandoned industrial plants. However, this transformation has been less drastic in large cities like Kyiv, where economic recovery has been more rapid since 1991. Instead, Kyiv presents a mixed picture, with some industrial sites abandoned and closed, some continuing to function, and some partially or wholly redeveloped.

In this section of the study, we provide short portraits of five industrial districts within Kyiv. These five were mentioned frequently in the professional and popular press of the 1930s and were highlighted in the explanatory report of the 1936 general plan. The five districts are the following: the Lenin Forge works (two locations), in the Halitskyi district and Petrivsko-Kurenivskyi district, the Bilshovyk works and the Gorky machine-tool works in the Zhovtnevo-Svyatoshynskyi district; and the Darnytsky car-repair factory and complex of textile factories in the Darnytskyi district. All five represent implemented industrial facilities from the 1936 plan, except for Darnytsky's complex of textile factories,¹⁰⁰ and all five are machine industry enterprises. Understanding the trajectory of the physical history of these industrial works provides a window on the industrial transformation of Kyiv during the tumultuous eighty-plus years that followed the issuance of the 1936 general plan (Table 3).

[Table 3 goes about here]

Bilshovyk: from industrial plant to pioneering shopping mall

In 1930, reconstruction commenced on a prerevolutionary machine tool plant located along the Brest-Litovsk highway. The Bilshovyk (Bolshevik) works were first established by Czech businessmen Yakov Greter and Yosyp Crivanenko in 1882. The reconstruction proposed the doubling of the plant's industrial area, and the shifting of production from repairing machines to mechanical engineering¹⁰¹. Like other pre-revolutionary industrial enterprises in Kyiv, the czarist-era factory that existed in 1930 was actively criticized by Soviet architects. In *Socialist Kyiv*, a propagandistic journal of that time, an aerial sketch from 1916 represented the factory in a semi-ruined condition. Author Gutman¹⁰² argued that workers in Bilshovyk endured unacceptable conditions in narrow, muddy, and dark industrial pavilions. Contrary to the negatively portrayed prerevolutionary plant (Figure 10), Soviet architects designed a model factory at Bilshovyk which could not only produce high-quality machine tools but also symbolize socialist achievement for the working class. Additionally, based on the 1936 general

¹⁰⁰ Horhot, A., "From the industrial development experience. The project for textile complex", *Socialist Kyiv*, no.6, 1937:21

¹⁰¹ Lipkes argues that Bilshovyk was the leading of chemical machinery in the Union. Source: Lipkes, I., "New industry of the capital", *Socialist Kyiv*, no.10, 1936:17-18.

¹⁰² Gutman, Ye., "Kyiv under the umbrella of Stalin's constitution. The right to the city", *Socialist Kyiv*, no. 6, 1937:1, page 30-32

plan's general concept of increasing green areas and of building a "Garden City" in Kyiv, the project team realized a model recreation area at the Bilshovyk plant whose design was in accord with Soviet ideals of a socialist city (Figures 11,12).

Following Ukraine's independence in 1991, the Bilshovyk plant began to decline. Soon the severely troubled enterprise was privatized and tried to survive by producing rubber, processing plastics processing, recycling used tires, and renting empty pavilions for storage and small enterprises. But Bilshovyk's biggest industry in the capitalist era would come from consumption, not production. In the second half of the first decade of the 2000s a small portion- 5 Ha- of Bilshovyk's 35 overall Ha were transformed into a shopping center, also called "Bilshovyk" (Figure 13,14). What was once a convenient area for workers, adjacent to a Metro line and surrounded by residential areas, became a convenient location for shoppers.

The Bilshovyk transformation is comparatively modest: the majority of the Soviet industrial plant survives, with low-level activity continuing and most industrial structures still (2019) intact. The Bilshovyk mall occupies one corner of the site. There, two industrial pavilions have been repurposed, with two levels of shopping added to the interior, and parking and loading added on a basement level. Industrial imagery, and the site's Soviet history and propagandistic name, became, for a time, symbols for capitalist exploitation by the private owners of the site. In 2017, the mall's name was changed to "Kosmopolit" ("Cosmopolite") to comply with Ukraine's 2014 "Decommunization" laws, passed in the wake of the Maidan revolution's expulsion of a corrupt, Russia-friendly regime. The mall's owners also capitalized on the site's convenient location by adding a residential slab and office tower adjacent to the transformed industrial pavilions along a principal street.

The Bilshovyk/Kosmopolit mall has become a popular place for the middle class in Kyiv for shopping and entertainment, in part thanks to the fact that this transformation was one of the first, if not the first, such transformations of an industrial facility in Kyiv¹⁰³. Ironically, though the site's Soviet past is (or was, until 2017) celebrated through imagery, the continuing existence of industrial production on the site, albeit at a low level, is not celebrated, and is even made invisible by the segregation of the highly visible portion of the site dedicated to consumption. Whatever one thinks of a "Bolshevik" shopping mall, the paradox does illustrate a certain ironic dimension of Ukraine and the larger post-Soviet sphere's process of recovery from state socialism. The possession of the name did, for a while, provide a limited lens on the past. Yet shopping center visitors, according to a 2012 study, were unaware of the current situation of a still working plant nearby,¹⁰⁴ and an art museum placed in the shopping mall by the private

¹⁰³ Bilshovyk was not the first shopping mall constructed in Kyiv: the Maidan shopping mall directly under the city's central square was constructed between 2001 and 2003.

¹⁰⁴ Ryabchuk, A., Onyshchenko, N., "From Communism to Capitalism, from Production to Consumption: The Case of the Bilshovyk Plant and Shopping Center in Kyiv." *Radical History Review*, n.114, 2012: 29-37

owners was named after Greter and Krivanenko, the pre-revolutionary plant founders. Thus Bilshovyk presents a paradoxical window on Kyiv's industrial past. As of 2019, much of its physical form survives, albeit nearly invisible, while the Soviet past and prerevolutionary farther past are, or were until recently, celebrated nostalgically, with little critical perspective.

*Lenin Forge I, Voksal: industry to offices at the "city gate"*¹⁰⁵

Kyiv's railway station, or Voksal in Russian, is a typically monumental group of structures constructed in the bed of the Lybid, a still existing, though sadly reduced, stream that flows into the Dnipro south of central Kyiv. The valley permitted easy construction of rail lines, providing the nearest proximity to the city center on Kreschatyka Street, and industry was quick to follow. An initial enterprise (Donat Lipovsky and Company) was established on a historically residential site called Zverinetsk, and in 1895 this enterprise relocated to a site directly adjoining the railway station, at the corner of Zhylianska and Symona Petlyury Streets (Figure 15). The new industrial complex was perhaps designed by Vladislav Horodetsky¹⁰⁶, arguably the greatest and best known of Kyiv's many outstanding architects of the turn of the century. Prior to the revolution, Donat Lipovsky, which would later be renamed Lenin Forge (Leninska Kuznya) was already one of the biggest mechanical and metalworking factories in the city.^{107,108}

Like Bilshovyk, the first Lenin Forge was subject to architectural and ideological critiques of the pre-revolutionary factory from the 1936 general plan committee, and like that factory it was also reconstructed during the first five-year-plan. In the Soviet era, the territory of the plant was expanded at least three times. Lenin Forge also contributed to the transformation of Kyiv into a "garden city": a square with flowerbeds and fountains was created on the plant's grounds¹⁰⁹ (Figure 12).

After Kyiv again became Ukraine's capital in 1932, Soviet planners raised a question of the Lenin Forge's architectural quality for two reasons: first, at that time the plant was one of the 11 largest plants of the Soviet Union, and it was therefore ideologically necessary for the plant to represent socialist industry; and second, the plant's prominent location adjacent to the railway station required the plant to have a contemporary appearance. According to publications of the time, the reconstructed pavilion would require a "cultural appearance"; in other words, an ability of the complex to inspire workers to labor, and for the plant to symbolize the association of this

¹⁰⁵ Khaustov, P, "Project of the Kyiv Linen Forge: From the experience of industrial Design", *Socialist Kyiv*, no.6, 1937:21-24

¹⁰⁶ According to Iyevleva, V. *Landmarks of Kyiv's Industrial Development*, (Press-CET), 2008), there is some doubt concerning Horodetsky's authorship.

¹⁰⁷ Iyevleva, V. *Landmarks of Kyiv's Industrial Development*, (Press-CET), 2008

¹⁰⁸ The Bilshovyk plant and the Arsenal plant in the Pechersky district (number 17 on [Figure 8](#)), were the two other significant metalworking plants in Kyiv of this time.

¹⁰⁹ Lenin Forge, Photoalbum 1890-1946. Source: Central State Archive of Public Associations of Ukraine

labor with human rights and to express the honor of labor.¹¹⁰ Moreover, the design team in charge of reconstructing the plan projected an industrial square, also called Lenin Forge, that would connect to the Voksal'na (railway) square, adjacent to the station. Lenin Forge was thus the first industrial complex whose design attempted an integration of the industrial plant with its surrounding city environment, thereby representing a new city function - the industrial center – at Kyiv's industrial-era “city gate” (Figure 16). Unfortunately for this integrative potential, the complex of new administrative buildings and Lenin Forge industrial square, all designed by the architect V. Onashchenko, was not realized.

Today, Lenin Forge is no longer a symbolic gateway to the industrial era, nor does the physical form of the Forge convey any sense of a complex whose design was once so important as to symbolize Soviet industry not just to Kyiv, but to the entire Union. The Forge has shrunk in area both through conversion of industrial buildings and through demolition. What was perhaps visually the most important symbolic building, a low pavilion located along Symona Petlyury street leading to the railway station, was demolished midway through 2001. Vacant for almost a decade, the site was eventually occupied by a parking lot, permitting access both to rehabilitated structures behind and for a new bus terminal. Other portions of the Forge, opening onto the busy streets of Starovokzalnaya and Vokzalnaya, were spontaneously transformed into shops, cafes, warehouses, and offices. Some structures inside of the Lenin Forge site are still dedicated to production, and these structures have been designated local monuments needing to be preserved by the cadastral plan of Kyiv (Figure 17, Figure 18). If this preservation ordinance holds, at least some portions of Kyiv's industrial gateway will remain to mark the existence of this once-significant complex. But the symbolic potential of the first Lenin Forge has been, at least for the moment, sadly diminished, replaced by the shops and parking lots of capitalist Kyiv.

Lenin Forge II, Rybalsky Island: Twenty-first century Kyiv's development frontier

In the Dnipro River just adjacent to the Podil neighborhood is a large peninsula, once an island, called Rybalsky Ostriv (Fisherman's Island). Rybalsky was shaped in part by the course of a right-bank tributary of the Dnipro called the Pochayna, which got its name from a fishing village located nearby in the 18th and 19th centuries. At the beginning of World War I, the island was still undeveloped. Industrial development on this peninsula, creating the complex that would be called the second Lenin Forge, commenced in 1928. The Lenin Forge II site would be one of the first to symbolize the transformation of Kyiv from a trade center to an industrial node of the entire Union.¹¹¹ This enterprise would become famous not only thanks to its rapid development during the first Five-Year Plan, thus symbolizing the success of the industrial command

¹¹⁰ Khorhot, A., Kuznetsova, G., Katonina, E., *Architecture and development of industrial enterprises*, 1953:238

¹¹¹ *Zavod Leninskaia kuznitsa/Lenin Forge works*. State Publishing House of Technical Literature of the USSR. Kyiv, 1962

economy, but also by the achievements of its scientific and experimental laboratories. Similar to the Bolshevik Works, the Rybalsky Lenin Forge II developed improved engineering solutions related to the maritime industry. For instance, in 1931 an innovation led by Professor Evgeny Paton improved fastening mechanisms for ships produced at the plant (Figure 19).

The Lenin Forge plant was large and diverse, including shipyards, housing, administrative buildings, and several large sheds utilized for repair and construction. Connectivity to the island was poor until the 1960s, when a pedestrian bridge was constructed from Podil to the Forge site. This bridge carried thousands of workers each day by foot from Podil to Lenin Forge. Prior to the 1960s, the island's urban pattern consisted of a combination of industrial and dwelling zones. The dwelling zone, with working-class quarters and barracks was located only 75 meters or so from the industrial zone, without the typically prescribed spatial buffer. These dwelling quarters with five story structures, smaller residence hall dormitories, and one story barracks, together with former cultural and administrative buildings, remain standing today and unlike the former industrial structures are still in active use.

In 1994 the Lenin Forge II was privatized¹¹², causing a decline in its production. Today the site is a paradigmatic gritty, post-industrial waterfront landscape. The site is divided among several private owners, and connectivity to the city is once again poor due to the closure of the pedestrian bridge, as well as to construction of a waterfront highway in the early 2000s (Neberezhno Rybalsky Street) that severed the Forge's connection to the Dnieper. Lenin Forge's accessibility is currently (2019) evolving. A long-delayed trans-Dnipro bridge was originally projected to continue as a limited-access highway across much of northern Podil. It would have further destroyed the districts' connection to the Pochayna inlet. Instead this bridge connector has been reconfigured to connect to Podil's central Boulevard (Nyzhnii Val Street), thereby demolishing the stub of the Soviet-constructed pedestrian bridge. In its semi-abandoned state, the pedestrian bridge had become a popular gathering place for Podil's informal artistic culture. With the highway completed, Podil will be 'better connected' - but at a high price for pedestrian connectivity to Rybalsky Island.

Despite connectivity barriers, the Rybalsky Lenin Forge site is attractive to developers because of its proximity to the city center and to the Podil historic district. The large size of the site, around 90 Ha, adds to its attractiveness. Kyiv's developer-friendly 2025 general plan has designated Lenin Forge for residential development in the form of towers and courtyard blocks. None of the industrial pavilions, almost all of which are surviving as of 2019, are projected to remain. Thus, Kyiv's most significant and visible industrial waterfront site, with its monumental buildings, profound interior spaces, and diverse outdoor spaces, is slated to become another high-rise 'business class' district. Dirigiste planning, which directed the creation of the second

¹¹² <https://zkr.com.ua>

Lenin Forge, is now projecting the Forge's erasure from the city landscape and from the people's memory (Figure 20).

*Darnytskyi car-repair factory: A plant with an "exemplary" workers' neighborhood*¹¹³

In order to implement their most ambitious industrial and residential projects, Soviet planners in Kyiv chose the flat, unbuilt left bank of the Dnipro, already linked to the right bank of the city in the 1930s by two railway bridges. According to their ambitious plans, the largest textile complex in the Soviet Union¹¹⁴ and the Darnytskyi (train) car repair factory (DCRF) should be located in this area. While the textile complex would remain unbuilt, the DCRF had been 90% completed through overtime labor in only three years prior to the 1936 general plan publication.¹¹⁵ Today, the DCRF is part of the Darnytskyi industrial region, one of the three largest "modern" industrial districts in the city according to the 2020 general plan.

The general plan of 1936 projected both a large plant as well as a parallel residential district, to be located next to the plant and accommodating around 250 000 people.¹¹⁶ The district was constructed as a "city within a city", with a full range of community facilities, connecting infrastructure (tram), and even a local newspaper. The plant was badly damaged in the war, and the postwar reconstructed plant did not retain much of its original structure (Figure 21). However, most of the residential district was preserved. The housing group has both historical and architectural value, consisting of several types of prewar and postwar housing models, including low-rise single-unit housing, low-rise multi-unit housing, and 4-story dwelling "panel buildings" of prefabricated elements.¹¹⁷

The DCRF, as constructed by Soviet planners, played an extensive role in the industrial development of the left bank.¹¹⁸ The extensive plant established the validity of future development of this bank of the Dnipro (Figure 22) that would occur in this area from the 1960s onward. Today the DCRF is operated by the State Administration of Railway Transport of Ukraine, or "Ukrzaliznytsia"¹¹⁹. The works itself and most of the built environment adjacent to it retain their Soviet-era appearance. Community facilities such as the workers' tram station for the workers, the main public square in front of the works, a cultural center, schools and kindergartens, a water tower, and buildings for workers along Almatynska, the main street of the district, all remain intact. While the general atmosphere has a strong connection to the past, today

¹¹³ Suslov, P., "Wagon repair plant has to be an example!", *Socialist Kyiv*, no.1-2, 1934:23

¹¹⁴ Khaustov, V. "A new giant of textile industry", *Socialist Kyiv*, no.9, 1936: 13-14

¹¹⁵ Iyevleva, V. *Landmarks of Kyiv's Industrial Development*, (Press-CET), 2008

¹¹⁶ *Ibid.*

¹¹⁷ *Ibid.*

¹¹⁸ Lipkes, I. (?). "Industrial construction in Kyiv", *Construction: national journal of science and technology*, 1934: 11-14

¹¹⁹ <https://www.uz.gov.ua/en/>

differences are visible through small design elements like street vendors, new cars, and contemporary retail on the first floor of buildings. In the public square of the works, the Socialist context is dialectic: the former Lenin monument has a Soviet-era information plate, an artifact from the past whose 1934-era details are being slowly overtaken by Kyiv's harsh weather.

Gorky Machine-Tool Works: Catalyst for a new Soviet city district

On the western edge of Kyiv along the Brest-Litovsk highway, a complete workers' neighborhood was constructed at the "Factory of automatic machines" in accord with the general plan of 1936 (Figure 23). The new plant and its residential area were placed on 130 hectares, converting the city periphery into a new city district. The two factory "working villages", at DCRF and at the Gorky Machine-tool Works, were the first and most prominent examples of industrial plant residential areas, and both have remained exemplars of this Soviet settlement type in Kyiv to the present day (Ievleva, 2008). The social pattern for industrial city development, whereby a new industrial enterprise became a catalyst for an entire city district development, was established in Kyiv at these two plants. The Gorky Machine-tool Works was intended to transform the city land around the plant, formerly a village, and at the same time expand the city's fringe through industry. The importance of Gorky's implementation¹²⁰ can be seen in the publication of a separate facilities plan for the Zhovtnevo-Svyatoshynskyy District within the general plan of 1936. Placement of this significant industrial enterprise firmly established Brest-Litovsk as a major urban axis of Kyiv, an exemplar of the Socialist industrial economy (Figure 24).

The Gorky works were organized by a clear spatial planning structure: a central allée of trees and pedestrian walkways, a sort of industrial boulevard along which were arrayed the plant's pavilions. This allée, most of which survives today, provides a pleasant pedestrian experience, and the entire ensemble, including the central allée, the park landscaped with fountains and ornamental plantings, and the remaining cultural and administrative buildings convey the unique status of the factory during early Soviet industrialization. Some buildings, including the industrial pavilions, have decorated facades on their allée frontages, while more minimalist architecture is visible at these works' back. The ornament indicates the conventional architectural approach of the first five-year plans, whereas in those structures constructed after World War II, decorations of industrial facades were subject to cutbacks.

Unlike DCRF, industrial production at the Gorky Machine-tool Works has collapsed in the post-Socialist era. The Brest-Litovsk road is convenient to central Kyiv, and the adjacent metro line, just a few stops from the city center, has made the area desirable for the high-rise

¹²⁰ Lipkes, I. (?). "Industrial construction in Kyiv", *Construction: national journal of science and technology*, 1934: 11-14

development that was first brought to Kyiv by Soviet planners. The Gorky works are undergoing a range of spatial transformations, ranging from casual adaptation with small businesses to complete demolition for China-style “luxury” residential complexes. The large pavilions once used for in-line assembly are being demolished, and a large part of the plant adjacent to the Nyvky metro station has already vanished, with new high-rise buildings appearing on the site¹²¹. The author’s site visit to the remaining industrial pavilions indicated that all the remaining structures are available for rent. Little of the original industrial activity would therefore seem to have survived.

The different building typologies of the early factory, ranging from large industrial pavilions to administrative buildings, allow for different types of postindustrial appropriation. The former industrial pavilions are popular for warehouses and automobile storage and administrative buildings for small and medium office space. A large banner in the entrance zone [Summer 2019] advertises a space for rent ranging from 30 up to 600 square meters. Of the once-great production capacity of the works, only two small pavilions are still operating: a secondary pavilion for metalwork and a heat treatment workshop are located on the site far from the metro station. According to a local worker, these small shops do work for other enterprises and are not part of the original Gorky works.

In the office of the managing company that occupies the former main administrative building of the Gorky works, a poster with architectural concepts for future changes is present. The architectural proposal would demolish everything from the past. The generically designed high-rises already constructed demonstrate little relationship to the site, an unfortunate portent for the future of this significant complex.

Toward a future for Kyiv’s Soviet-era industrial districts

The above site profiles demonstrate the varying experiences of Kyiv’s Soviet-era industrial districts since Ukrainian independence (Figure 25 and Table 4). In general, Kyiv’s industry is a significant legacy of Soviet economic planning, city development, and urban design. The city was lightly industrialized prior to the Russian revolution, but the crash industrialization of the early Five-Year plans, and the heavy emphasis placed on industrialization in the postwar era, left Kyiv in 1991 with a wide geographical and functional range of industrial facilities. Industry was placed by Soviet planners on the Dnieper riverbank both north and south of the city, as well as on the newly constructed left bank and in the interior area of the right bank. In other words, Kyiv, in 1910 a historic trading city, was by 1990 ringed and surrounded by heavy industry on all sides.

¹²¹ [website](#)

This industrial legacy clearly presents both a burden and an opportunity in today's capitalist, independent Ukraine. The transformations that the five profiled sites have experienced since 1991 demonstrate a range of outcomes, some intentional, some less so, that have only partially preserved to the present day [2019] the impressive physical legacy of the Soviet era. Collectively, both locations of the Lenin Forge, the Bilshovyk, the Gorky machine-tool, and the Darnytsky car-repair factory represent what we can consider as a range of conventional, or business-as-usual, development outcomes in today's Ukraine. We term these outcomes business-as-usual both because they are consistent with larger urbanization and planning trends in the post-Soviet sphere¹²², and because none of the environmental or architectural elements of the-Soviet industrial legacy have yet been subject to formal preservation or planning policies intended to preserve or otherwise maintain their current activities, form, and architectural integrity.

The business-as-usual outcomes found in the five profiled sites can be understood as representing a spectrum along two different descriptive measures: level of economic activity, and survival of original Soviet-era structures, or architectural persistence. These two measures are not necessarily proportional or consistent; in other words, a high level of activity does not necessarily require survival of the original Soviet industrial structures, nor does a low level of activity necessarily communicate that the original structures have disappeared. Kyiv's industrial sites, represented by our profiles, represent a full sample of the interrelationship between economic activity and architectural persistence. At the same time, the profiled sites fall into different analytical categories, or assessments, that can be understood as a synthesis of the two descriptive measures. Table 5 below summarizes these descriptive measures and analytical categories for the five sites, which we then discuss in further detail.

Given the economic dereliction that afflicted Ukraine following independence, one would not expect industrial sites with reduced activity located in the midst of a still-vibrant capital city to remain perfectly intact over a period of decades, nor for the underused land and buildings on these sites to remain so. Instead, one would expect some version of the transformations that have occurred to postindustrial sites across the Western world in previous decades to have also occurred in Ukraine. As urban designers and planners have documented in surveys of postindustrial cities¹²³, transformations typically include a mix of economic repurposing, survival of original industry, preservation of industrial structures, and demolition of industrial structures

¹²² For an unscientific but perceptive survey of post-Soviet urbanization both within and without the bounds of the former Soviet Union itself, see two recent books by UK architecture critic Owen Hatherley. Hatherley, O. (2016). *Landscapes of communism: A history through buildings*. New Press, The, and Hatherley, O. (2018). *The Adventures of Owen Hatherley in the Post-Soviet Space*. Repeater.

¹²³ E.g. Baum, M., & Christiaanse, K.m eds. (2012). *City as loft. City as Loft, Adaptive Reuse as a Resource for Sustainable Urban Development*. Zurich, Switzerland: gta Verlag; Grogan, P., Grogan, P. S., & Proscio, T. (2001). *Comeback cities: A blueprint for urban neighborhood revival*. Westview Press.

in favor of vacant speculative space or new construction for repurposed economic activities. The same range of activities is found in Kyiv's industrial sites, but in different proportions to that found in 'typical' postindustrial cities like London, New York, Manchester, or Pittsburgh.

What are the unusual qualities of Kyiv's industrial sites? Perhaps these sites' most unusual quality is the relatively high level of continuance of industrial activity, and the low level of demolition and economic transformation, to have occurred by 2019. In other words, Kyiv's industrial sites are still partially industrial both in form and in function; they have not yet made a full postindustrial transition, and many industries are still functioning there, despite privatization and in some cases the demise of the former large state-owned enterprises that once occupied the sites. This survival, or continuance, of industry is partially responsible for the high level of survival of original structures on all five of the sites profiled. Both continuance of structures and survival of industry are much more unusual in the context of Western European and American cities, where industrial uses have often departed entirely, or if remaining, have been rehoused in entirely new structures via redevelopment processes¹²⁴.

Kyiv, in other words, seems to represent a 'slow' or fragmentary postindustrial transformation¹²⁵. Understanding the reasons for this slow transformation transcends the limits of this study, but it is evident from surveys of other Ukrainian cities¹²⁶ that Kyiv's situation is not inconsistent with that of other areas in Ukraine and, indeed, the rest of the former Soviet Union, where in many cases industrial plants survive even more intact, and with more continued activity, than in Kyiv. This slow transformation is also consistent with the relatively limited transformation of Soviet-era housing districts, almost all of which also survive in Kyiv in more or less intact, though deteriorated, form, to the present day.

There are other possible reasons for the high level of survival of Kyiv's Soviet-era industrial plant. Soviet cities, including of course Kyiv, were not constructed according to market logics, and urban space therefore did not have the same value as in capitalist cities. This lack of a land market, combined with Soviet ideals of a 'garden city' and later of ideal residential design, produced large urban districts with substantial amounts of unoccupied, otherwise vacant space, even as it produced industrial areas whose spatial location within the city was unrelated to market logic. Soviet Kyiv's vacant spaces, ranging from highway interchanges to metro station plazas to large 'blank' areas in between ranges of housing towers and monumental ceremonial

¹²⁴ Examples of such processes for automobile factories may be seen in Detroit, as documented in (redacted).

¹²⁵ According to the 2020 general plan, 11,7 % of Kyiv's population is currently involved in the industrial sector and its number could be further reduced to 7% within 20 years (Source: *An Explanatory Note to the 2020 general plan for Kyiv*. The institute of the general planning.)

¹²⁶ For instance, the "Promprylad" plant transformation project in the city of Ivano-Frankivsk, <https://promprylad.in.ua/en/>.

spaces in the city center, was readily available for infill development under capitalism, whether for office, residential, or retail functions.

Precisely such development is what occurred in the decades after independence. Such 'blank' city spaces were infilled with small kiosks and eventually in many cases with new, high-rise residential buildings as well as shopping malls and office structures. It is conceivable that the widespread existence of such 'infill' sites siphoned off market demand that might have otherwise have demanded industrial or postindustrial sites as a location for new construction. Such conversion of post-industrial land has occurred in western European and American cities that had more limited space elsewhere for conversion. In Kyiv, one would expect under such an 'abundant infill' scenario that once such sites were filled, that other 'soft' sites, including postindustrial sites, would eventually be redeveloped. It is also possible that a low overall level of real-estate market activity in Kyiv post-independence translated to a low overall demand for market-led redevelopment of industrial sites. Certainly Ukraine was a low income country in the years after 1991, and income levels today [2019] are still well below income levels in western Europe.

Whatever the cause, replacement of Soviet-era industrial structures was comparatively limited on the five sites profiled. A few industrial structures on high-visibility, high-profile sites were demolished, as at the Lenin Forge I and Goriky, and a few others were repurposed, such as the periphery of Lenin Forge I and the southeast corner of Bilshovyk/Kosmopolit. Elsewhere, however, as at Lenin Forge II and Darnytsky, comparative remoteness or lack of market demand meant that industrial activity simply continued, or that industrial structures were left vacant, more or less mothballed, waiting for future activity or redevelopment proposals to demolish and replace them. This process is what seems to be underway in the second Lenin Forge site, where the growing popularity of Kyiv's waterfront, the occupation and development of more easily available waterfront sites, and the overall growth of the Kyiv economy, are collectively leading to proposals for the near-complete redevelopment of the Forge. A similar process, perhaps more advanced due to the easier accessibility of the site, is underway at the former Goriky machine-tool works.

The preservation of Kyiv's Soviet industrial structures, in other words, is far from assured. Whereas surviving industrial structures and districts in western Europe and America have persisted through conscious preservation or adaptive reuse, or more commonly, at least in the United States, have been demolished and redeveloped for economic development, industrial structures have persisted in Kyiv and by extension elsewhere in Ukraine through a process of slow, fragmentary postindustrial transformation, the continued existence of industrial enterprises, and through limited demand for redevelopment, in part through comparative inaccessibility. The sum of this processes is not quite benign neglect, but may be thought of as a kind of 'sleeping

urbanism', akin to those processes that have preserved more or less intact the entirety of Kyiv's Soviet-era housing districts. That such sleeping urbanism will last forever is unlikely; even if the city never experiences China-level economic transformation, Kyiv may yet experience something akin to Moscow's economic boom, where Soviet-era residential districts and industrial areas in the city center are both experiencing substantial levels of redevelopment.

It is therefore important to project alternative futures for Kyiv's Soviet-era industrial districts and structures. This importance is twofold. In the first place, such alternative futures have value for industrial structures and district where there is currently, and for the foreseeable future, little viable economic activity. Such an alternative future might demonstrate the viability of these underused areas, and activate these spaces and the spaces around them. Additionally, and equally importantly, alternative futures for Kyiv's industrial spaces might forestall the imposition of conventional, business-as-usual solutions for prominent spaces currently under threat. New York City's recent demolition of the near entirety of the Domino sugar factory on the Brooklyn waterfront for conventional high-density luxury apartment buildings indicates one potential future for Lenin Forge II, with its spectacular industrial pavilions and monumental, unique location at the edge of Rybalsky Island, and an almost guaranteed future for the Gorky plant.

But Kyiv also provides examples of alternative paths for industrial districts. In particular, bottom-up tactics are becoming increasingly viable as a means of developing urban space in Kyiv. The architectural quality, mythic history, and ruined beauty of Kyiv's industrial spaces are stimuli rather than barriers to a new generation of creative, activist individuals and organizations in Kyiv. While it is widely accepted that bottom-up tactics and pop-up approaches are not a marginal, ephemeral trend but a fundamental alternative to conventional planning^{127,128}, such approaches continue to be underappreciated and even illegal in Ukraine, and these approaches are therefore typically considered ineffective by the professional community and by private developers in the city. Below we examine three scenarios for reactivation of industrial districts and structures that bypass conventional approaches. The first scenario *increases awareness of the value* of ex-industrial landscapes; the second scenario meshes *temporary occupation with cultural appropriation*; and the third scenario involves the rehabilitation of buildings where a *new function becomes a catalyst* for industrial district changes and potentially for preservation of industrial heritage. We then provide a critical view of the alternative scenarios examined, understand their current shortcomings, if any, and then establish further recommendations for future alternative scenarios.

¹²⁷ Overmeyer, K., & Misselwitz, P. (2011). *Urban catalyst: Strategies for temporary use*. P. Oswalt (Ed.). Basel: Birkhäuser.

¹²⁸ Campo, D. (2013). *The accidental playground: Brooklyn waterfront narratives of the undesigned and unplanned*. Fordham Univ Press.

Increasing awareness of industrial heritage: community mapping tool “Map Me Happy”

In Kyiv, three factors affect the demolition and abandonment of the city’s industrial legacy: safety concerns, economic viability, and lack of public interest in the issue¹²⁹. To these issues may be added the absence of any local city policy protecting Soviet (as opposed to prerevolutionary) industrial landscapes¹³⁰, and the near lack of public documents relating to these sites, due to their production under totalitarian governance (Figure 26). With the aim of illuminating the Soviet industrial legacy and shifting public attitudes about it to a more positive perception, the *Map Me Happy* initiative¹³¹ was established through the collaboration of the international architectural festival CANactions and the European Geography Association¹³² in 2014. *Map Me Happy* permitted and encouraged citizens of Kyiv to convey their emotions about specific sites in the city, by providing a straightforward interface of a large city map, and annotatable adhesives. This project was triggered by the designers’ sense of the public’s lack of acquaintance with the Soviet built environment, a negative attitude regarding urban issues that is common in post-socialist countries.

The methodology of *Map Me Happy* grows from theoretical and conceptual grounds in urbanism that were established by American researchers in the Modernist and Postmodernist eras: Lynch’s *Image of the City* (1960), Jacobs’s *Death and Life of Great American Cities* (1962), Venturi and Scott Brown’s *Learning from Las Vegas* (1972), Rowe and Koetter’s *Collage City* (1978) as well as contemporary urbanist Campo’s *Accidental Playground* (2013). With this theoretical work in mind, this social digital tool might depict the real uses still occurring in underused industrial areas, understand their current, socially constructed value, and perhaps most importantly, collect people’s stories and memories for sites and in a society that had previously vastly undervalued the same. Ultimately, *Map Me Happy* takes a critical first step toward the introduction of participatory urban design methods to the industrial landscape of Kyiv.

Temporary occupation and DIY urbanism: “Tyhiy Khid”/“Quiet Move”, e.g. “One Small Step”

In 2014 a collaborative project between international architecture festival CANactions and cultural festival Gogolfest touched upon the subject of reactivating industrial space with a multidisciplinary effort. A diverse team of urbanists together with festivalgoers and local stakeholders created a temporary public space at the Dnipro shore, adjacent to an abandoned “river station” constructed in the Soviet era for passenger ships. This was previously an invisible space, hidden behind fences. Situated in the large industrial Telychansko-Korchuvatyy district,

¹²⁹ redacted.

¹³⁰ Mieg, H. A., & Oevermann, H. (Eds.). (2014). *Industrial heritage sites in transformation: clash of discourses* (Vol. 6). Routledge.

¹³¹ Mapmehappy.com.ua

¹³² <https://egea.eu/>

the site is located just a 15-minute walk from the metro Vydubychi, with a beautiful view that juxtaposes successional nature and an industrial landscape. With an extremely small budget and crowd-sourcing of additional funds, this space, called “Tyhiy Khid” (a “quiet move”, or small step), was transformed through “DIY” (do-it-yourself) construction. Participants explored the potential of this area to see if it could exist as a public space (Figure 26).

As the main task, the team addressed the newly discovered access to the river, defining a key factor for the redevelopment of the gritty, industrial Telychansko-Korchuvatyy district. After the residency, the boat station came back to its routine, functioning as a river station with only limited access to the public. While the future of the territory is not clear today (2019), future public access as a catalyst for all district development was designated in a revitalization project for Telychka by architectural firm Zotov&Co.¹³³ Although “Tyhiy Hid” does not literally ‘map on’ to *Map Me Happy*¹³⁴, this and other DIY or temporary Kyiv urban spaces could be MMH’s potential logical extension. Temporary occupation of hidden but beautiful industrial sites could become the next step in exploring, improving, and testing public perceptions of the Kyiv landscape.

KARZ-12 – “stand-in” occupation in industrial buildings under transformation

The last case study of emerging scenarios for industrial districts is nearby the aforementioned Lenin Forge II (Rybalsky) works, in the Petrivsko [Podilsko]-Kurenivskyy industrial district. With close proximity to the vibrant and historic Podil district, rich with youth-related activity and cultural organizations, this former industrial area has experienced much alternative development since Ukraine’s 2014 Maidan Revolution. CEDOS, a local urban think tank office, has recently written that the Podil district is thriving with numerous local public initiatives (informal cultural institutions and start-ups) and that Podil is serving as a venue for the emergence of civil society in Kyiv in general¹³⁵. One of the most compelling projects in the Petrivsko [Podilsko]-Kurenivskyy district includes a multidisciplinary platform for cultural initiatives called the “Port Creative Hub”, a cultural platform called IZOLYATSIA¹³⁶, a cultural center called MetaCulture¹³⁷, the KARZ-12 group described below, and several art galleries (Figure 27). Beyond these uses being geographically located together in the large Petrivsko [Podilsko]-Kurenivskyy district, these cultural activities share an attitude of celebration of Soviet architectural and urban heritage through rehabilitation of its legacy, holding public programs to

¹³³ <http://www.zotov.com.ua/en/>

¹³⁴ This project was initiated as part of the TANDEM programme 2014-2015 by redacted, Petronela Bordeianu, and Niels Grootjans.

¹³⁵ Sociological study by CEDOS and Hmarochos “Podil: the potential for creating hromada. Report of sociological research / Podil: Potensial do hromadotvorennia. Zvit za rezul’tatamy sotsiologichnoho doslidzhennia”, Kyiv, 2018.

¹³⁶ <https://izolyatsia.org/en/>

¹³⁷ <https://www.metaculturekyiv.com/>

enhance civil society and bring together like-minded creative class members, and expressing a certain level of creative practice through collective action.

In the beginning of 2019, a new alternative scenario for industrial urban space was pioneered in Kyiv. Four “urban initiatives” comprising a mix of for-profit and non-profit urban and design practices - Agent of Changes¹³⁸, Urban Curators¹³⁹, Hmarochos¹⁴⁰, A+C¹⁴¹ - relocated their offices to the former Kyiv automobile repair works, otherwise known as KARZ -12¹⁴², in the Petrivsko [Podilsko]-Kurenivskyy district. According to a methodology for temporary projects suggested by European agency Urban Catalyst¹⁴³, KARZ-12 is a *stand-in scenario*. Signing a short term lease for office rent and a multifunctional space for events, the team of four firms aims to capture the current industrial value and contribute to the future of this area as a residential district by suggesting mixed-use scenarios. Having no formal mandate, the team acts as a group of activists rather than as formal actors.

Their short-term value of KARZ-12 is undeniable. In its small time in existence it has held several public events. Nevertheless, this stand-in scenario is today being affected by typical shortcomings of temporary uses that have been described by different scholars. These are vulnerability¹⁴⁴, the risk of almost no influence on long-term spatial transformation^{145, 146}, and proportional mismatch, where an informal scenario struggles for “formalization” within a context where the district is under active top-down transformations, rendering the informal project potentially considered naive and ineffective.

Concluding thoughts

Kyiv and Ukraine are a city and nation in transformation. Struggles in governance, rule of law, establishment of institutions and stability of the economy have influenced the limited, or slow, postindustrial transformation seen in the case studies examined in this study. At the same time, these ongoing transformations create potential vulnerabilities for alternative scenarios’ long-term effect and influence on official, conventional, planning in Kyiv’s Soviet industrial districts.

¹³⁸ <http://a3.kyiv.ua/>

¹³⁹ <https://urbancurators.com.ua/>

¹⁴⁰ <https://hmarochos.kiev.ua/>

¹⁴¹ <https://apluss.pro/>

¹⁴² <http://bit.ly/32c4sRz>

¹⁴³ Overmeyer, K., & Misselwitz, P. (2011). *Urban catalyst: Strategies for temporary use*. P. Oswalt (Ed.). Basel: Birkhäuser.

¹⁴⁴ Desimini, Jill. "Limitations of the temporary: landscape and abandonment." *Journal of Urban History* 41, no. 2 (2015): 279-293.

¹⁴⁵ *Ibid.*, 279-293.

¹⁴⁶ <https://failedarchitecture.com/why-the-pop-up-hype-isnt-going-to-save-our-cities/>

Kyiv's current political and economic structure do not necessarily promote alternative scenarios for postindustrial transformation. The city not only has large inventories of abandoned land (around 30%¹⁴⁷), but comparatively weak governance, outdated and even conflicting planning regulations, lack of enforcement, lack of financial support for public projects, and localization of power in the hand of capital interests who are not necessarily enlightened. All of these sad realities are true of many other post-Soviet countries including Russia, but a bright spot in Kyiv is the presence of democracy, however underdeveloped, and the flourishing of civil society, particularly in the form of citizen-led urban interventions in Kyiv's industrial fabric.

Within this context, the next, necessary steps for increasing the role and transformative potential of alternative scenarios fall to different stakeholders. Those organizations leading alternative projects, such as KARZ-12, could further develop the ecosystem of temporary projects to enable them to further share knowledge and resources and to resist undesirable conflict with the formal sector. Furthermore, the professional community, acting as a bridge to some extent between civil society and the formal private and public sectors, might further support these temporary scenarios in order to advocate them to both developers and representatives of the municipality.

Kyiv's Soviet legacy, and its legacy of post-Soviet transformation, far transcend industrial architecture alone, and far transcend the national boundaries of Ukraine. Industrialization affected almost every city in the global north, and many in the global south as well, such as Sao Paulo and Kolkata (Calcutta). Transformation of industrial legacies in a manner that respects heritage, permits pluralistic interpretation and reuse, and that stimulates and supports cultural creativity in a market-friendly context, will present challenges for many post-industrial cities. Kyiv benefits from an extraordinarily rich legacy of industrialization, and from a fertile, if somewhat anarchic, period of gradual post-independence experimentation of transformative measures-what this study has termed "sleeping urbanism". Several aspects of Kyiv's transformation process of industrial legacy merit continued attention. First, preservationists should continue the existing process of incorporating Modernism into practices of heritage. Kyiv industry's cultural clubs for industrial workers, landscape strategies, related housing, and large-span buildings are manifestations of twentieth-century architecture and urbanism that cannot, and should not, be ignored. Second, Kyiv offers promising lessons on how industrial space transformation can occur in ways that are not dependence on state support. Explaining such facilities as Art-Zavod and UnitCity was beyond the scope of this study but should be considered for future research. Lastly, temporary and small cultural and art activities have benefited from the comparative deregulation, low costs, sleeping urbanism, and overall deregulated atmosphere of post-independence Kyiv. In other words, when it comes to industrial

¹⁴⁷ The General Plan 2020 for Kyiv. Source: <https://kga.gov.ua/generalnij-plan>

transformation, more rules are not always better, though such libertarianism might also open the door to unregulated capitalism.

This study's exploration of the rich built heritage of Kyiv's industrial districts, together with the alternative scenarios for these industrial districts' rehabilitation, show the great possibilities for an alternative future in Kyiv, one that would set a standard for the preservation of an impressive Soviet industrial legacy that is still little explored and understood, and in addressing proactively and creatively the causes that have driven demolition and abandonment of this industrial legacy. Yet without ongoing support, further implementation, and appreciation from the formal sectors, alternative strategies may be limited in their influence on conventional development in Ukraine's largest city.

Table 1. Kyiv's industrial districts across time, pre-1936 to 1947.

1935, comprehensive study of the existing condition			1936 general plan		1947 general plan
District name*/ historical names	ha	# of enterprises	District name	ha	District name
I. Petrivsko [Podilsko]-Kurenivskyy	128	48	I. Petrivsko [Podilsko]-Kurenivskyy	300	Petrovsky-Kurenivsky
II. Priorka	-	3	II. Prioka	78	
III. Halitsky (or Pryvokzalno-Halitsky)	30	16	-		
IV. Zhovtnevy (or Zhovtnevo-Svyatoshinskyy)	157	16	-	-	
V. Novostroyenskyy	30	19	V. Novostroyenskyy - additional	59	-
VI. Stalin'sky	61	12			Demeevka
VII. Darnytskyy, Nikolska slobodka, Kuhmeterskaya Slobodka	370	?	VII. Nikolsko-Brovarskyy	700	Nikolsko-Brovarskyy
-		?	VIII. Darnytskyy		Darnytskyy
IX. Telychansko-Korchuvatyy	?	3	IX. Telychansko-Korchuvatyy	400	Telychansko-Korchuvatyy
X. Pervomaisky (or Pervomaisko-January)	-	?	X. Chokolivka	65	
Lukyanivka	24	4	-	-	
Central	8	24	-	-	
Hlybochytysya	-	5	-	-	
Others	62		-	-	
Total	870				

* industrial districts - the name of city areas where location of industrial enterprises was planned (Source: The Explanatory report for the general plan of 1936) ** estimated area

Table 2. List of industrial districts and enterprises in 1936 Master Plan. Map of districts and enterprises is in Figure 9.

I. Petrivsko-Kurenivskyy (new industrial district):

1. pasta factory
2. «Kobtsev» factory (leather factory №6)
3. factory of children's shoes
4. furniture factory
5. car repair factory
6. mill
7. bread-baking plant
8. Lenin Forge II
9. «Ceramics» factory (factory of color ceramics)
10. "Ukrcablel" factory (cable factory)

II. Prioka (new industrial district):

III. Halitskyy (or Prykkzalno-Halytskyy):

11. «Artem» plant (mechanical engineering plant)
12. «Atomat Bread Factory №4» (bread-baking plant)
13. radio factory (radio equipment)
14. plant "Filverta & Dedina" / "Red Digger" / AT «ATEK»
15. "Donat Lipovsky and Co" cooperation/Southern Russian Machine Building Plant /Lenin Forge I works
- 15.1. plant «Tochprilad»/Kyiv Plant of Automation named after G. I. Petrovsky
- 15.2 confectionery factory

IV. Zhovtnevo-Svyatoshinskyy:

16. film factory of VUFKU
17. metallurgical and machine-building plant "Greter and Kryvanej"/"Bolshevik" plant
18. Gorky machine-tool works
19. «Red Plugar» (Robust Plow)
19. 1. factory of musician keyboards
19. 2. factory of pincers and instruments
19. 3. factory of wind instruments
19. 4. factory of steel per

V. Novostroenskyy - additional district (new industrial district):

- 20. factory of cinema chronology (Kyiv factory of cinema)
- 21. shoe factory
- 22. V. Bozhenko furniture factory (V. Bozhenko wood processing factory)
- 23. Dumbala plant / Dzerzhinskogo tram factory

VI. Stalin'sky

- 24. brick factory
- 25. bread-bracking factory
- 26. brewery

VII. Nikol'sko-Brovarskyy (new industrial district):

- 27. textile complex of enterprises
- 27.1. fine cloth factory

VIII. Darnytskyy (new industrial district):

- 28. plant for generating a rubber
- 28. rubber plan №1
- 29. meat-packing plant №1
- 30. meat-packing plant №2
- 31. car repair factory
- 32. Darnytskyy car-repair factory

IX. Telychansko-Korchuvatyy (new industrial district):

- 33. gas plant
- 34. tank farm

X. Chokolivka (new industrial district):

- 35. stocking factory

enterprises without address (the address was not mentioned in the archive documents researched for this paper):

- 35. meat processing plant
- 36. lathe machine factory
- 37. R. Luxemburg knitwear factory
- 38. «Chervona Huta» glass-making plant
- 39. Dzerzhinskogo Avtomat plant
- 40. brick factories (№3, №7, №9-10)

41. shell plant («Red rubber») /«Kyivgum»
42. book-magazine factory
43. factory of counting control devices
44. factory of Art Pottery / Ceramic Works
45. factory of hats
46. factory of road cars
47. printing plant plant
48. electrolamp plant (electrical appliance plant)
49. telephone connection plant

Table 3. Major works in the master plan of 1936 and their status today (2019). Source: author's field survey.

Plant, address	years built	significance according to the general plan of 1936	implementation	2019 production status	2019 Fate of buildings and comments
Lenin Forge I, Voksal, Zhilyanskaya st.	1886+	the plant was one of the 11 largest plants of the Soviet Union whose construction began in second five-year-plan	started in 1935 the Soviet project was partially realized and implied the demolition of pre-revolutionary plant designed in XX century by famous Kyiv architect Horodetsly	partially active	today it utilized as a warehouses and pavilions spaces have been renting for the small business enterprises
Lenin Forge II, Rybalsky Island	1928+		1928-1931 - erecting the first enterprise on the site	Inactive	the ongoing reconstruction of this area implies the new residential districts with the demolition of all existing industrial buildings
Bilshovyk plant, Vadym Hetman st, 8/26	1882, rebuilt 2006 (?)	was a sample factory for the landscaping of yard space	started in 1930, the Soviet project was implemented	partially active	the part of the plant is reconstructed and now used as a trade center, hotel, offices and etc. industrial buildings were transformed into the new function
Gorky Machine-tool works,	1934+, rebuilt 2008		the Soviet project was implemented	Inactive	partially transformed into business center "Nuvky". some of the industrial

Peremohy ("Victory") avenue, 67	(?)				buildings where demolished, some transformed for the new functions
Darnytsky car-repair factory, Alma-Ata street, 74	1935+	would have been the largest by number of labors factory in Kyiv	it was built during the second five-year plan. in 1936, the construction of the first stage was completed. in the postwar years was rebuilt, so only partially retained the original structure	active	
Complex of textile factories (project)	-	would have been the largest textile factories complex in the Soviet Union	the complex was not implemented	-	the plan was to locate it near the already existing thin-wool and viscose works, between Novodnitsky and Darnytsky highways

Table 4. Kyiv's industrial legacy: status today (2017). Source: authors' field survey.

	Name	Size in square meters	Year		Status in 2017
			Built	Change s began	
1	brewery	-	1835		wasteland and construction site
2	keramperlit factory	≈ 9000	-	2013 (?)	wasteland
3	"Yunist" factory				wasteland and construction site
4	Kyiv Tobacco Factory	≈ 28000	1867	2014 (?)	wasteland
5	T. Shevchenko tram depot	≈ 43000	1894	2005	wasteland
6	"Press of Ukraine" plant	≈ 33000	-	2013	residential district
7	Valentin Efimov chocolate factory	≈ 36000	1886	2007 (?)	residential district
7.1	«Kyivguma» plant			2013 (?)	wasteland and construction site

8	Kyiv motorcycle factory	290000	1945	2015 (?)	innovative park "Unit City" with IT focus
9	Lenin Forge works (on Rybalskyy)	≈ 983000	1928	2017	residential (ongoing project)
10	Darnitskyy silk complex	-	-	-	retail: "Darinok"
11	IV Shoe factory "10 years of Komsomol"	≈13000	1927- 1929	2005	business center "Forum Park Plaza"
12	Bilshovyk plant	363 000	1882	2006 (?)	retail, hotel, offices
13	Rosa Kyiv Factory of Knitted Garment	-	1880/ 1910	-	
14	machine-tool factory "Verkon"	-	-	-	residential
15	factory of tile products by Andrzejowskyy and Kulikovskaya	-	beg. 19 c.	-	
16	factory of malt extract	7000	1895	-	
17	liqueur and spirits factory	15000	1896	-	
18	Kyiv factory of electric transport	≈ 51000	1906	-	one administrative building transformed into retail: "Interval Plaza"
19	factory of chipboard products	82602	1950 (?)	-	
20	"Radical" chemical plant	-	-	-	only partially occupied by shopping malls, warehouses
21	gear factory	≈30000	-	-	retail: "Arkadiya"
22	glass-container plant	-	-	-	art-center G 13
23	Kyiv Shipbuilding and Ship Repairing Plant	165000	1896	2014	cultural initiative IZOLYATSIYA rents 1 former administrative building, dorm and pavilions
24	warehouses of Kyiv harbor area	> 500	-	2015	multidisciplinary platform for cultural initiative "Port Creative Hub"
25	tape factory	≈7000	-	-	art center "Closer" and Loft 31: dance club, lectures, bars, theater, photolabs and etc

26	Lenin Forge I		-	-	partially transformed into offices, shops and restaurants
27	Gorky machine-tool works	-	-	-	business center "Nuvky", residential
28	part of Kyiv Roshen Confectionery factory	-	1868	2016	public amenities
29	experimental mechanical factory	50 050	1975 (?)	-	transformed into warehouses, offices and temporary events
30	textile factory	120 000	-	-	art-zavod "platforma": multifunctional center with office, concerts, co-working
31	Arsenal plant	-		-	cultural center "Arsenal"
32	boat station	35000	-	2015	10-days temporary project for public use
33	experimental mechanical factory	≈ 50000	-	2014-16	temporary architectural and cultural festivals in 2013-2015
34	warehouses of Kyiv harbor area	-	-	-	temporary use for the event (2-days festival)

Table 5. Descriptive and analytical assessments of five profiled Kyiv industrial sites.

Profiled site name	Bilshovyk (Bolshevik)	Lenin Forge I	Lenin Forge II (Rybalsky)	Gorky	Darnytsy
Level of Activity (high, medium, low)	medium	medium	low	low	high
Survival of original structures to 2019 (high, medium, low)	high	medium	high	high	high

Analytical assessment	Mostly continuance, limited transformation	Mix of demolition, continuance, transformation	Ruin; Scheduled for demolition and full replacement	transformation	Mostly continuance
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LEGEND:

- 1 stage of industrial areas development - the master plan of 1936 (project)
- 2 stage of industrial areas development - the master plan of 1936 (project)
- industrial territories began to grow in 1930 - the master plan of 2025 (existing situation)
- other contemporary industrial territories - the master plan of 2025 (existing situation)
- railway

NOTES: The trace of the Dnipro river and railway correspond to the master plan of 1936

Figure 1. A comparison of industrial zones as designated in Kyiv’s master plans of 1936 and 2025 (diagram by authors).

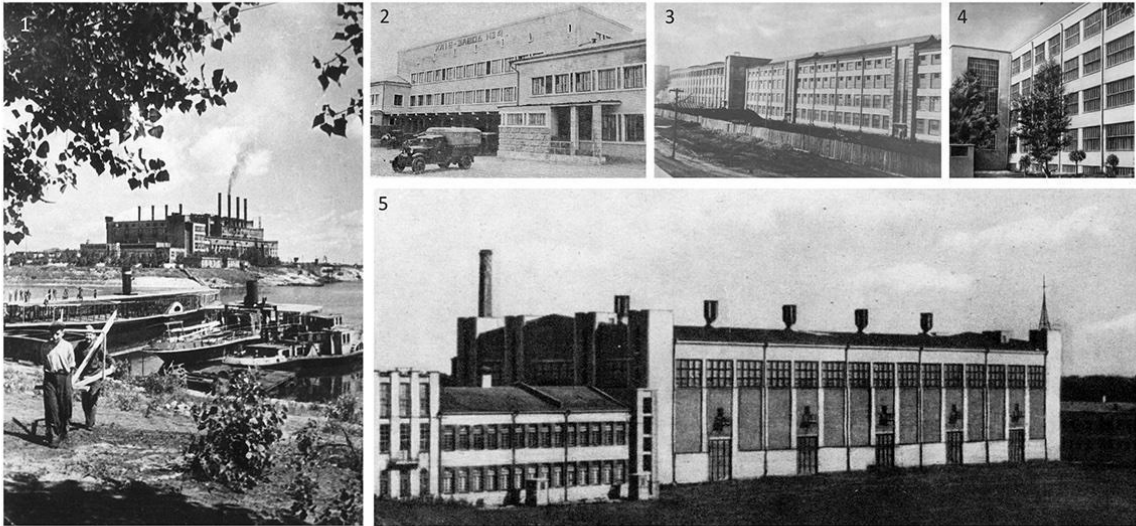


Figure 2. Constructivist industrial architecture in Kyiv, with year constructed if available. 1: Kyiv District Electrical Power Station, or KRES, c.1930. 2: Bread-baking Plant Number 4, demolished 2012. 3: Number IV Shoe Factory, or "Ten Years of Komsomol" Factory, 1927-28. 4: Rosa Kyiv Factory of Knitted Garments. 5: Film Factory, designed by Rykov, 1927-29. Sources: 1: <https://pastvu.com/p/634586>; 2: hmarochos.kiev.ua - <https://bit.ly/39jksU>; 3: Golovko 1962, Figure 74; 4: <https://www.retroua.com/year/1935/page/2/>; 5: Golovko 1962, Figure 74.

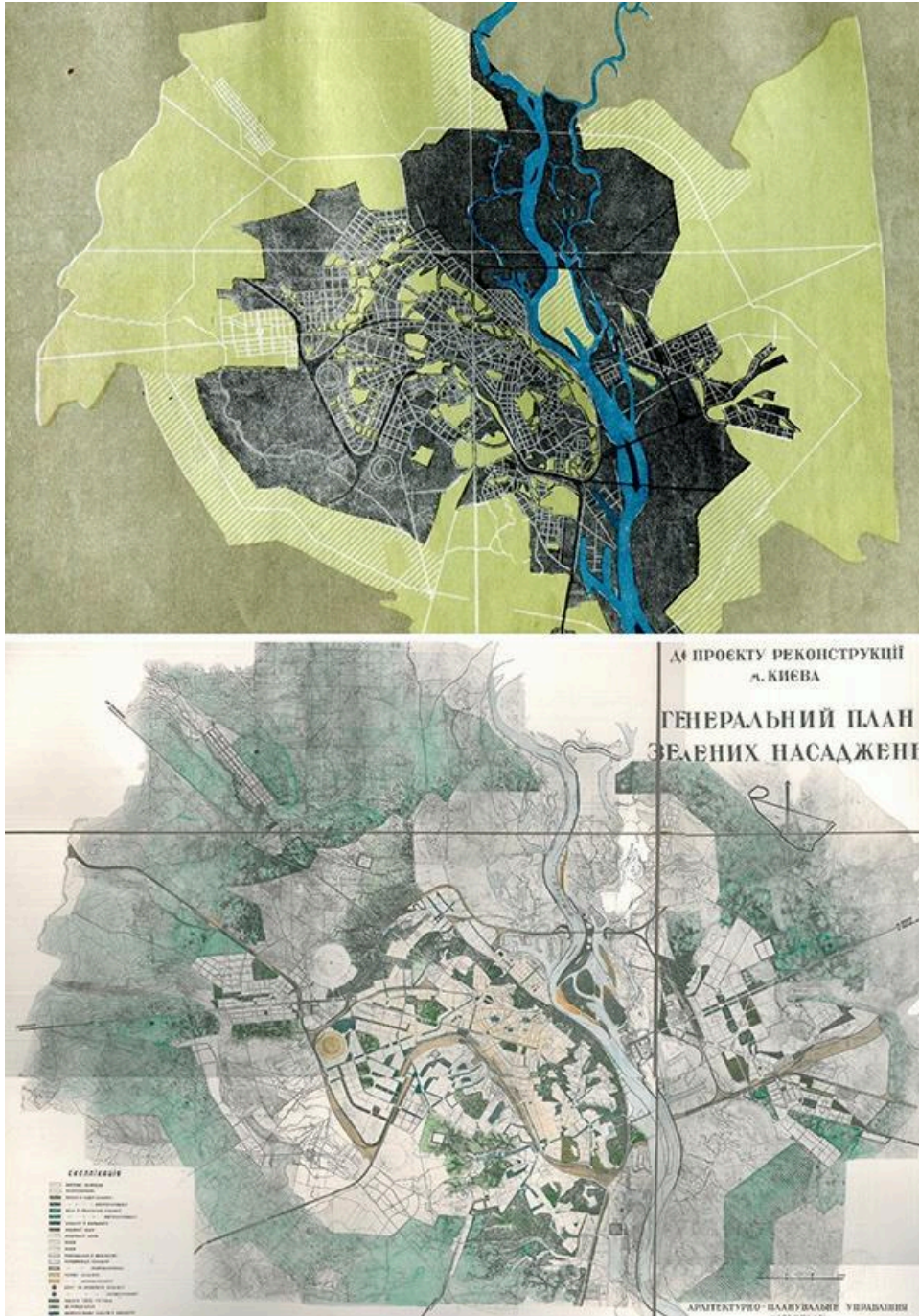


Figure 4. Green space plan drawings in the 1936 master plan, showing the external green belt of Kyiv. Green areas inside city fabric denote parks and gardens. Above: Scheme published in *Socialist Kyiv*, n.1, 1936. Below: Scheme from the Master Plan of 1936. Source: Central State Archive of Public Organizations of Ukraine.

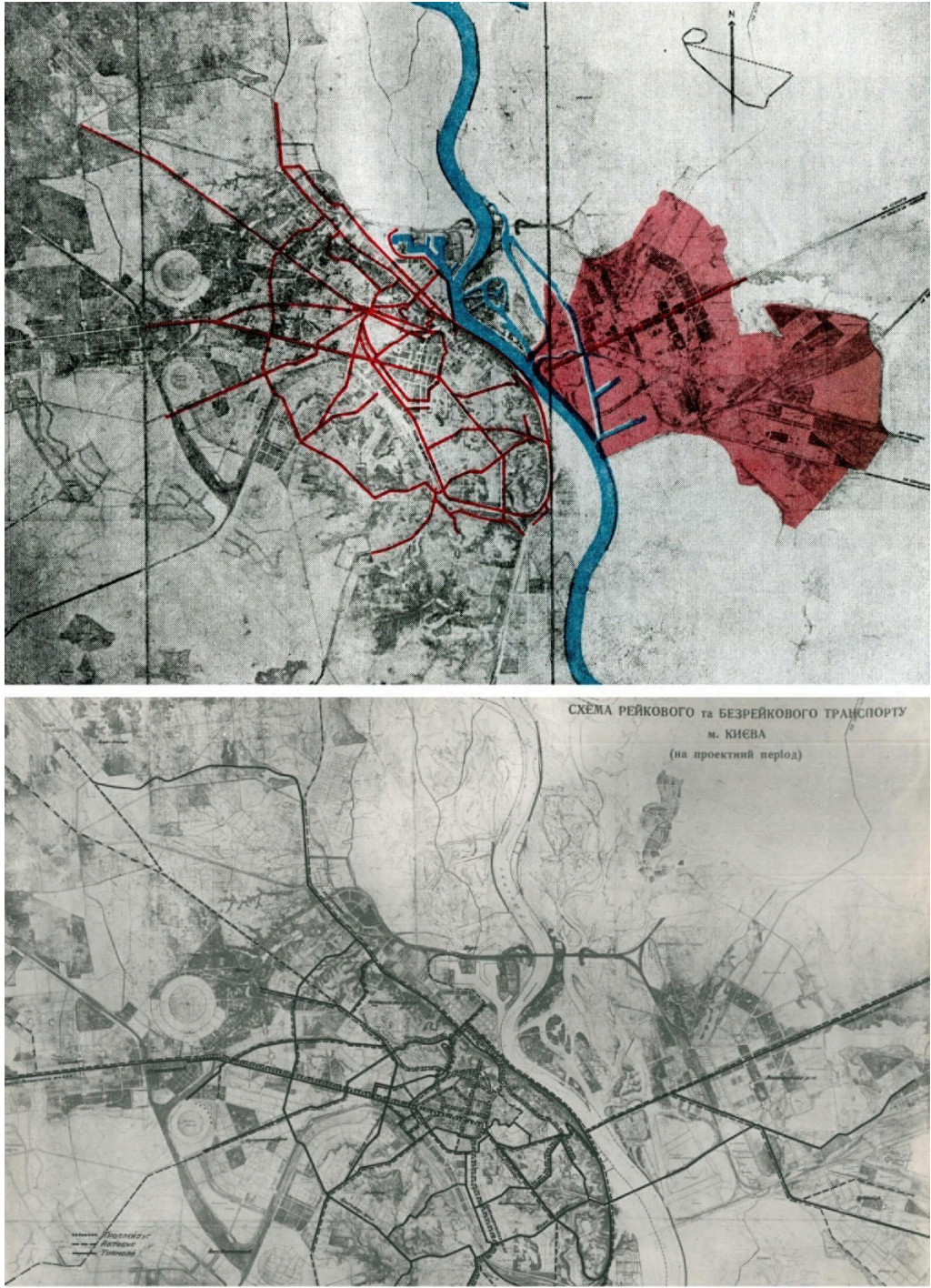


Figure 5.

The Master Plan of 1936. Red lines show road network projected for subsequent 10-15 years, large red area on the left bank shows a designated new city district. Source: Master Plan of 1936, Central State Archive of Public Organizations of Ukraine

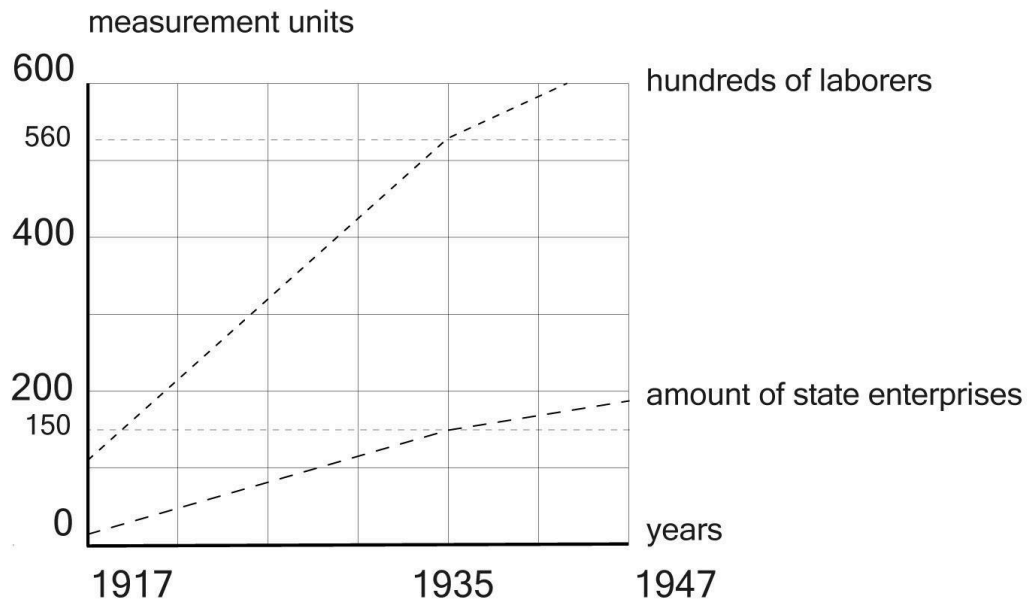


Figure 6. Past and projected statistics for enterprises and laborers as shown in master plans of 1936 and 1947. Diagram by authors.

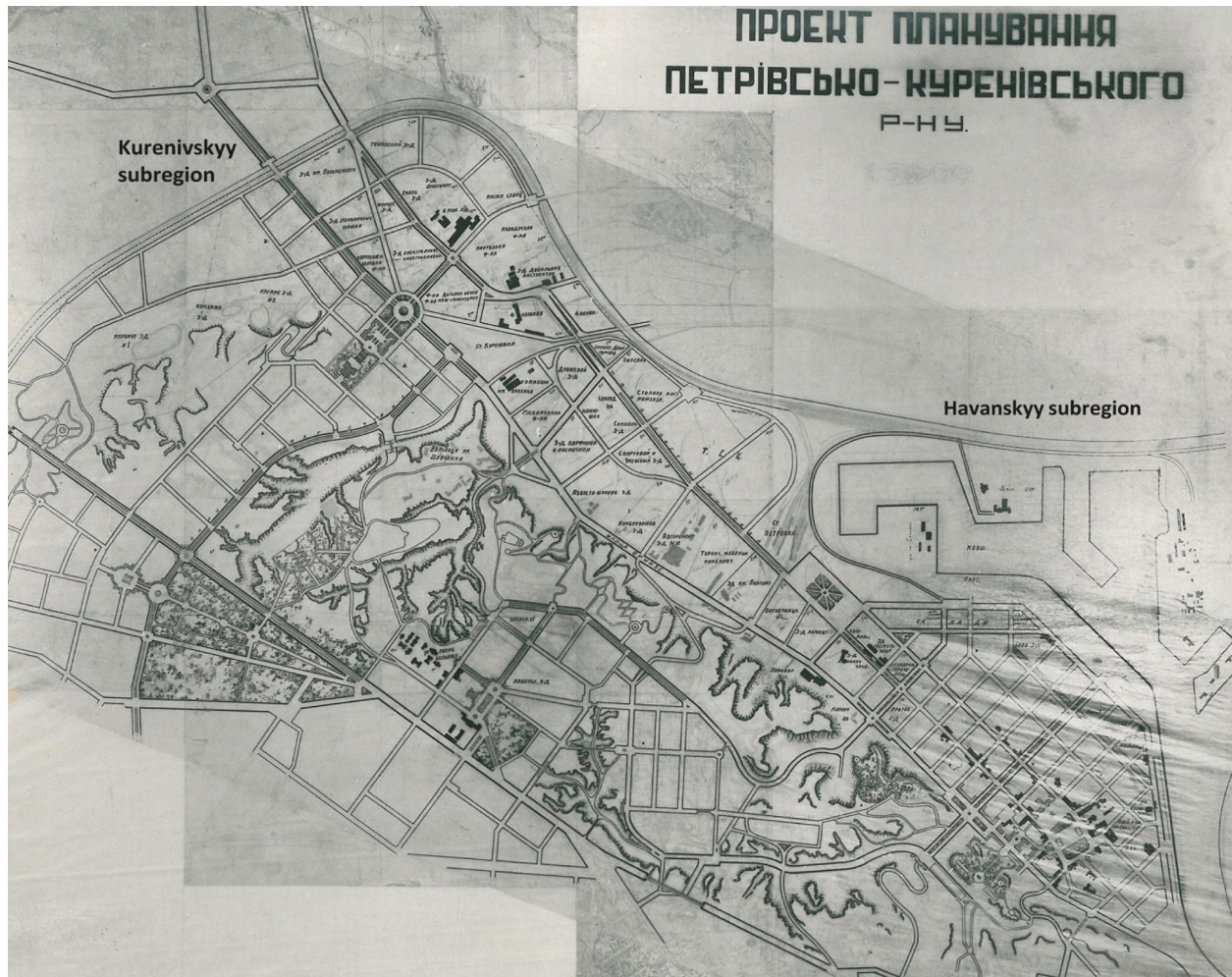


Figure 7. General plan for the reconstruction of the Petrivsko [Podilsko]-Kurenivskyy district from Master Plan of 1936. Much of this projected reconstruction was not implemented. Source: Central State Archive of Public Organizations of Ukraine.

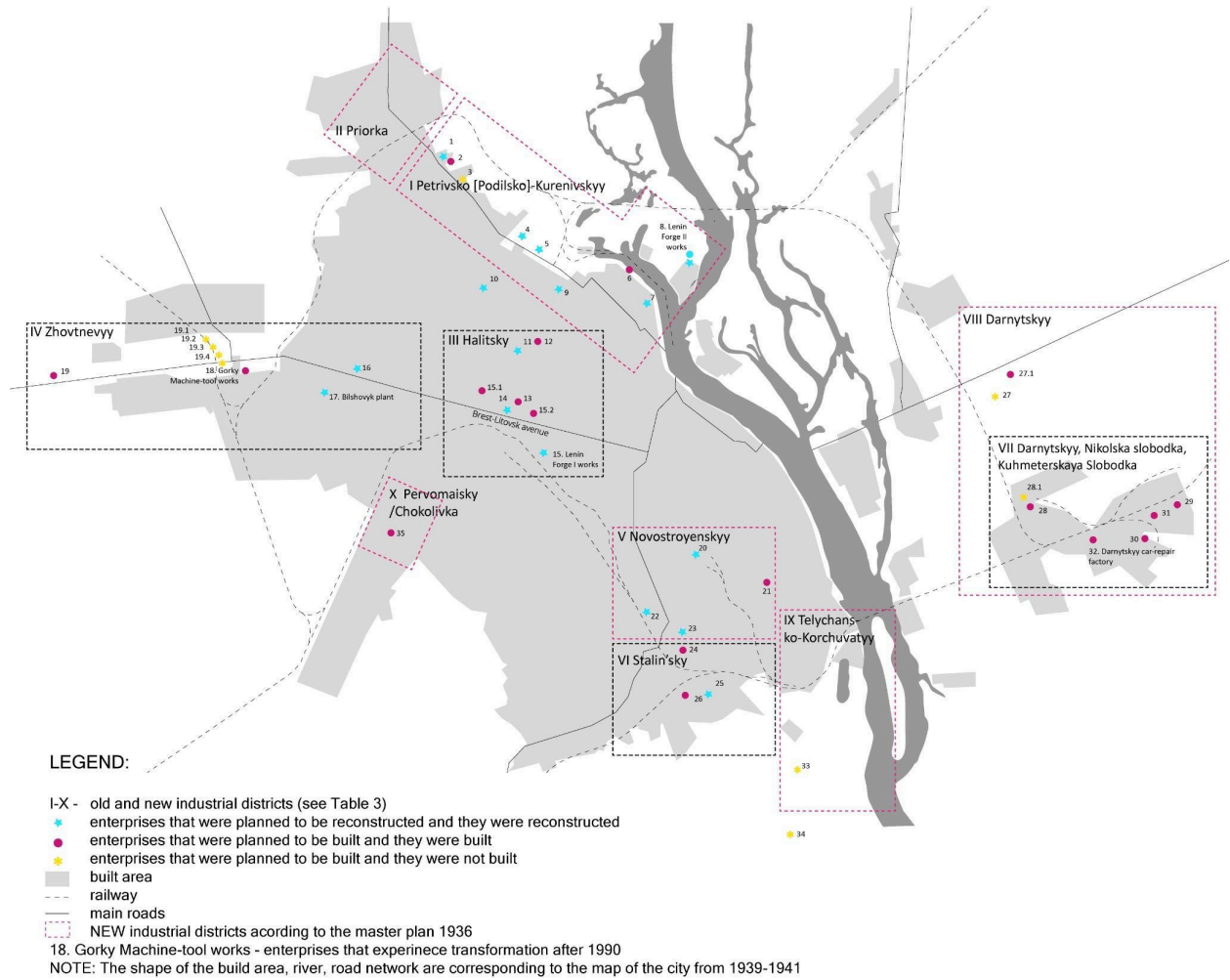


Figure 8. Diagram of industrial enterprise locations according to Master Plan of 1936, and status of implementation (by author).



Figure 9. General "scheme" for 1947 Master Plan. Source: <http://genplan.kiev.ua/ist.htm>.

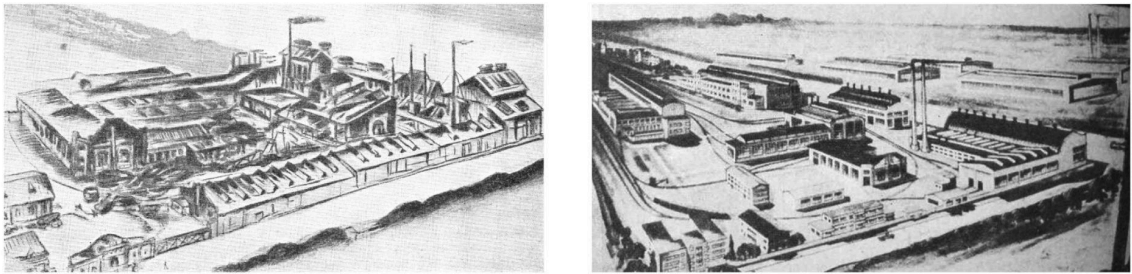


Figure 10. Representations of old and new industry: the pre-revolutionary in 1916 (left) and Soviet (right) Greater and Crivanenko plant in 1929. Source: 1,2: Horhot, A., *Arhitektura i blagoustrojstvo promyslennyh predpriatij*. Kiev: Izd-vo akademii arhitektury Ukrainskoj SSR (1953).



Figure 11. Images of the yard, or green space, in the Lenin Forge II. Source: Photo-album "Lenin Forge Plant. Kyiv 1896-1946. Central State Archive of Public Organizations of Ukraine

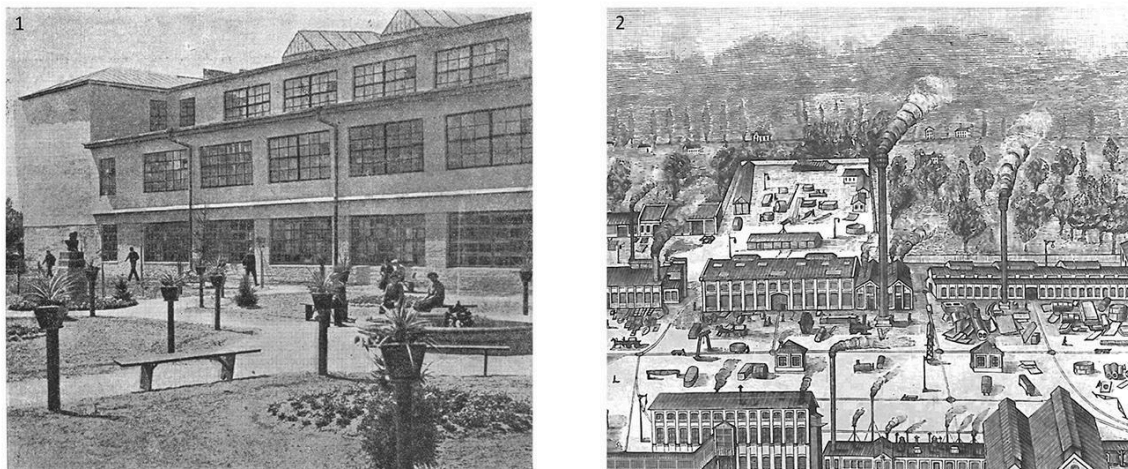


Figure 12. The Bilshovyk Plant yard in two periods. Left: Bilshovyk yard in the thirties; photograph of yard in the thirties. Right: Predecessor of Lenin Forge I, Donat Lipovsky and Co, 1900;. Source: 1: Journal "Socialist Kyiv" 1930th; 2: Iyevleva, V. (2008).

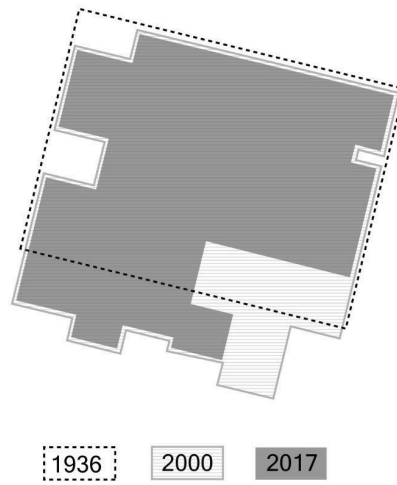


Figure 13. The boundary of the Bilshovyk plant over time. Left, from top: the fragment of the master plan 1936; photo from 1940; orthophoto from 2000; photo from 2000; orthophoto from 2017; photo from 2017. Source (from left top to bottom right): Central State Archive of Public Organizations of Ukraine; pastv.vu; google map; <https://en.wikipedia.org/>; google map; <https://en.wikipedia.org/>

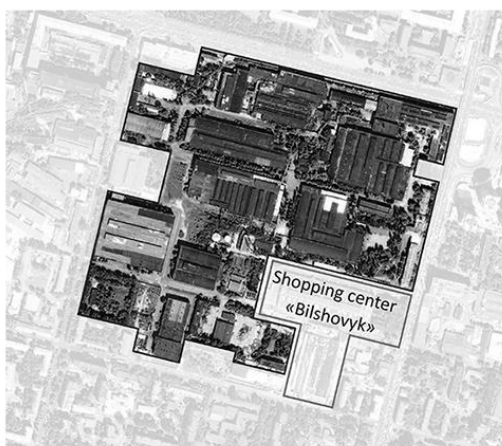
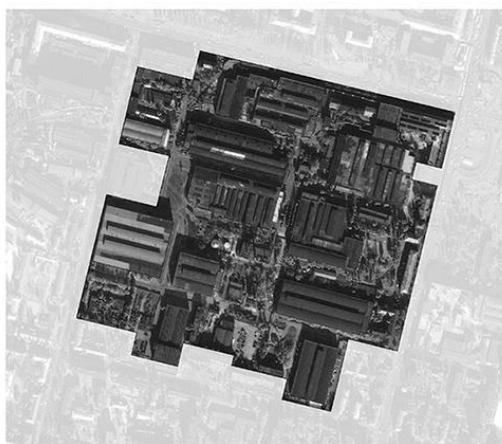


Figure 14. Spatial evolution of the Bilshovyk plant area, 1925 to 2017. Figure by authors.

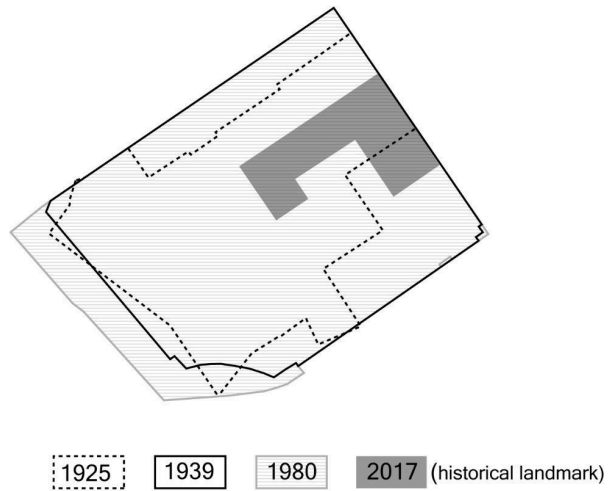


Figure 15. The boundary of the Lenin Forge I over time.

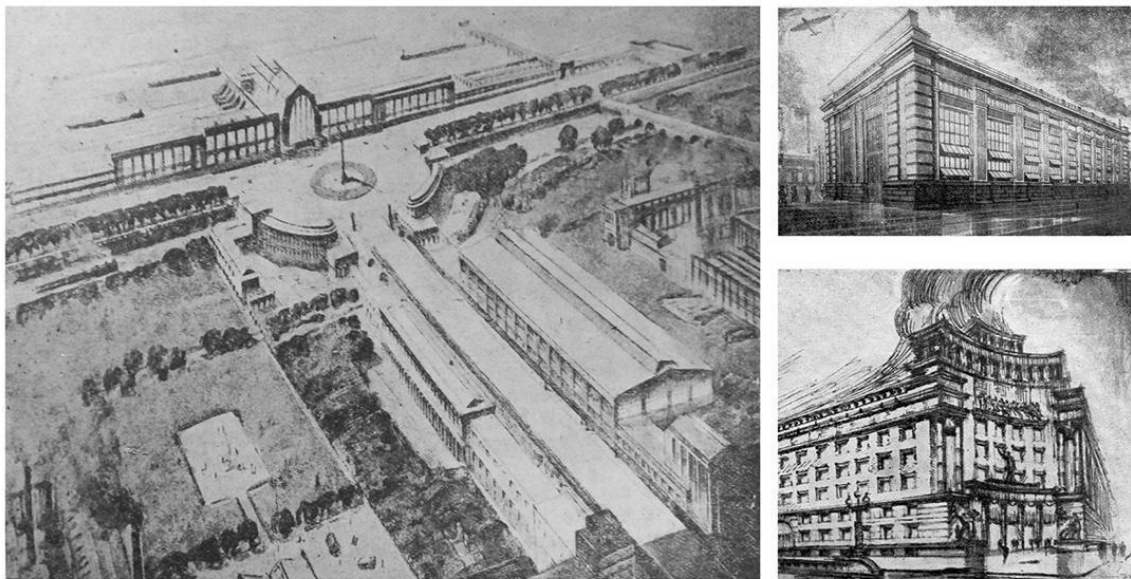


Figure 16. Lenin Forge I on Zhilyanskaya street. Left: 1934 project for reconstructing the railway station square by architect Homenko. Top right: [1936] Project for the boiler department by architect E. Yakhnenko. Bottom Right: [1936] project of the administrative department. Source (from top left to bottom right): Lypkes. I., *Construction of industry in Kyiv* (Promyslove budivnytstvo v Kyive), 1934; others: Journal “Socialist Kyiv”, 1936 №1

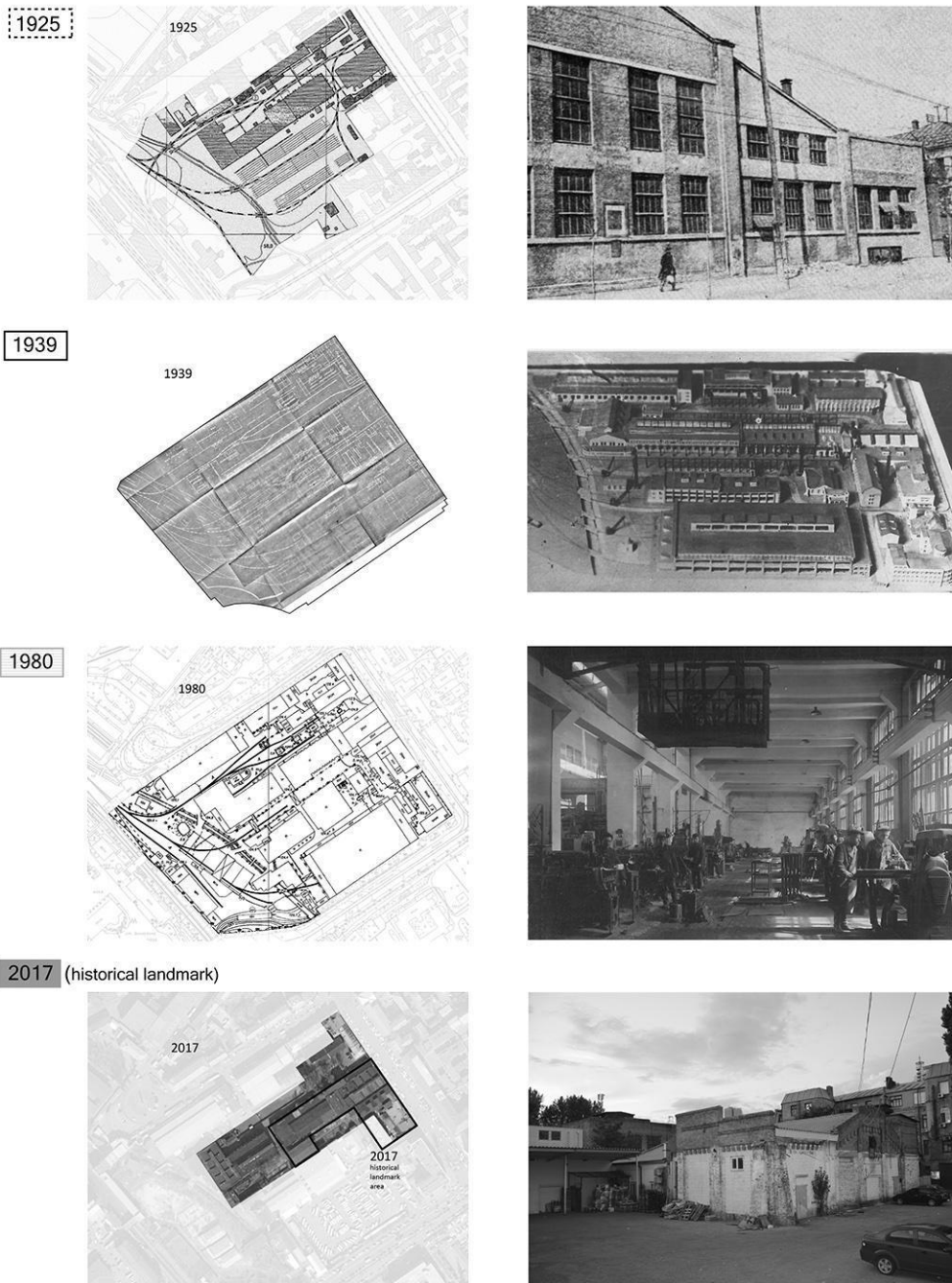
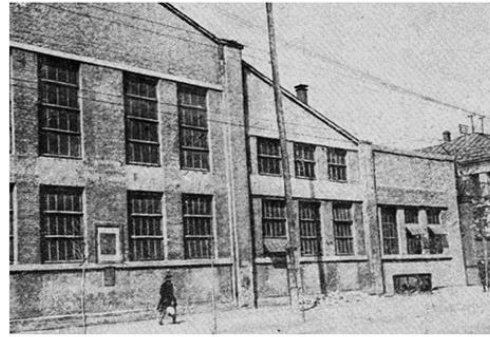
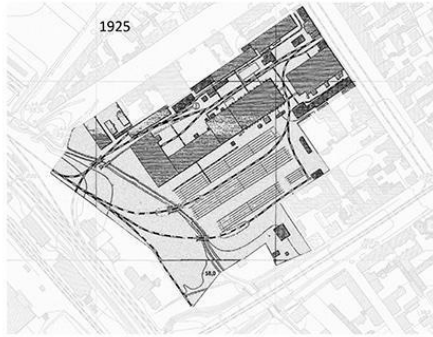


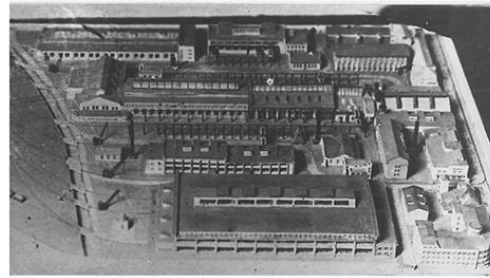
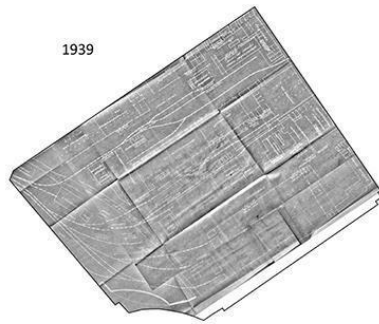
Figure 17. The Lenin Forge I in four periods, 1925 to 2017. Like the Bilshovyk plant, the area dedicated to industrial activities is shrinking. Top left to bottom right: the map from 1925; photos from 1930; the master plan for the plan from 1939; photo of the model; topographical plan from 1980; photo from pavilion in 1980; orthophoto from 2017; photo of prerevolutionary pavilion remaining standing today [2019].

Source (top left to bottom right): “Vatra” Publishing Company in Ukraine; map; pastvu.com; Kyiv State Archive; Photo-album Lenin Forge Plant. Kyiv 1896-1946. Central State Archive of Public Organizations of Ukraine; unknown; Photo-album Lenin Forge Plant. Kyiv 1896-1946. Central State Archive of Public Organizations of Ukraine; google map; wikimedia.

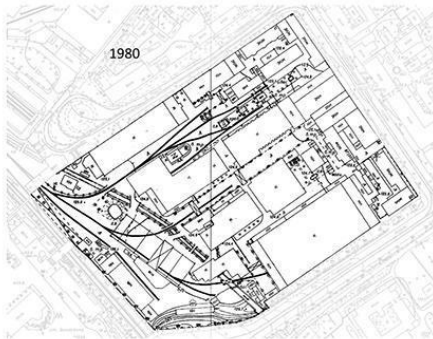
1925



1939



1980



2017 (historical landmark)

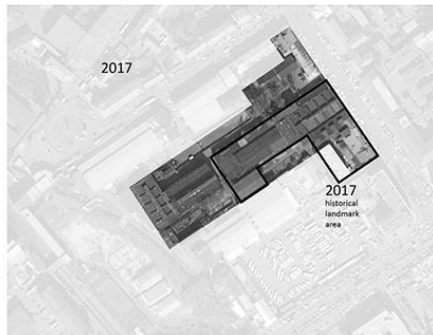


Figure 18. Photographs of Lenin Forge I in 2018. Source: authors.

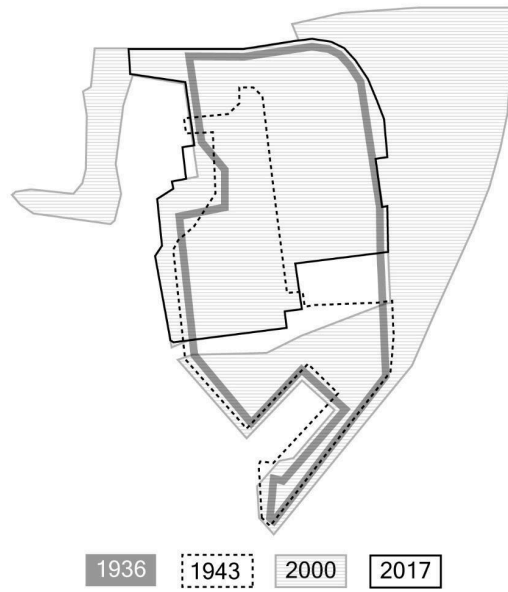
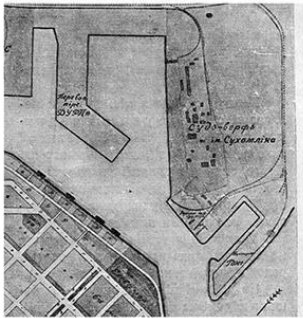


Figure 19. Spatial evolution of the Lenin Forge II plant area, 1936 to 2017. Figure by authors.

1936



1943



2017



Figure 20. The Lenin Forge II in four periods, 1936 to future. The plant is projected to be nearly totally cleared for new development. Source (top left to bottom right): the fragment of the master plan for Petrivsko [Podilsko]-Kurenivskyy in 1936; orthophoto from 1934; photo of main allee in the plant from 1940; orthophoto from 2017; aerial photo from 2018; the project of the master plan in 2017; the visualization of the project. Source (top left to bottom right): Central State Archive of Public Organizations of Ukraine; <http://starkiev.com/>; Photo-album “Lenin Forge Plant. Kyiv 1896-1946. Central State Archive of Public Organizations of Ukraine google map; Egor Shtefan photo; <https://buro.page/>; <https://buro.page/>.

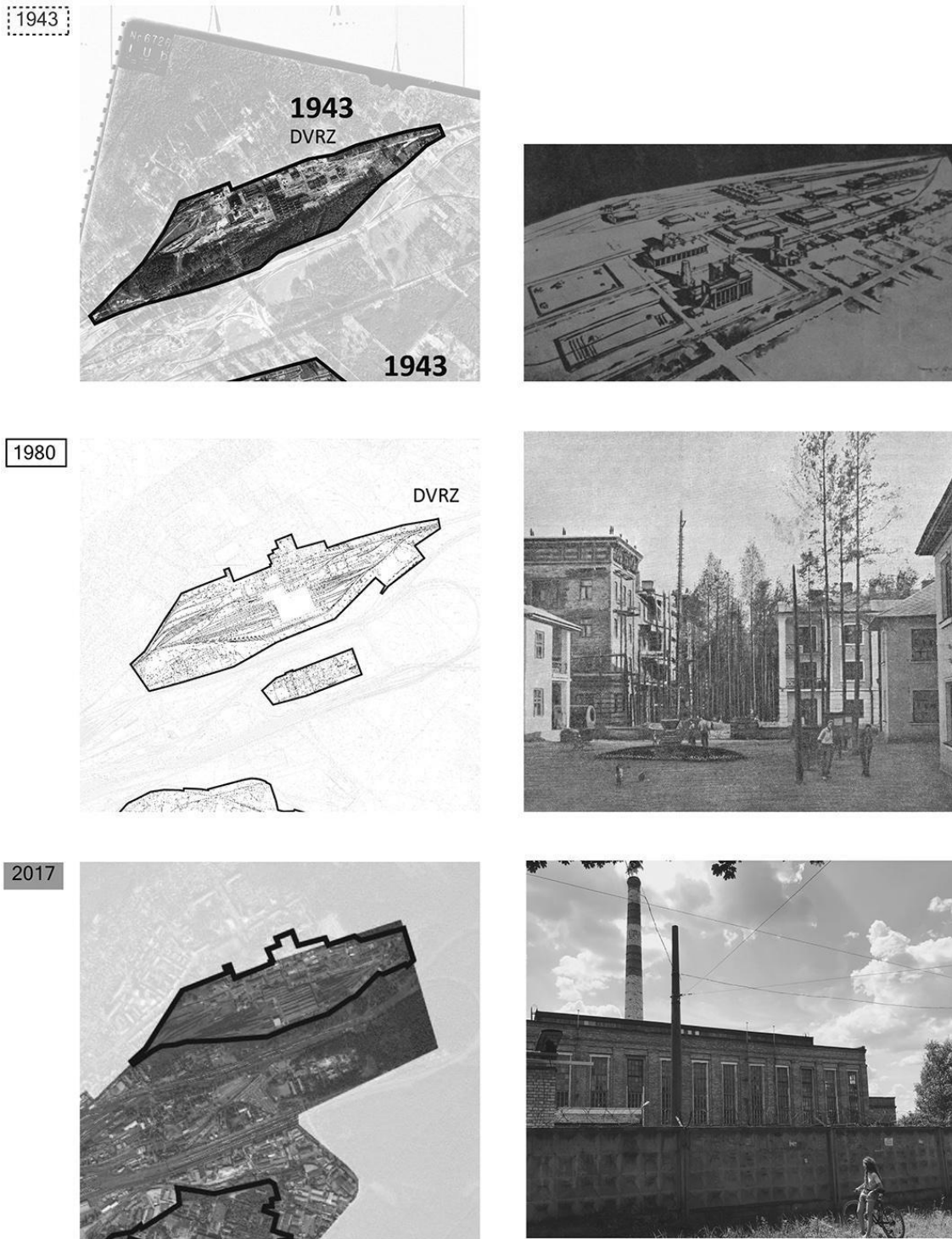


Figure 21. The Darnytskyy car-repair factory in three periods, 1943 to 2017. The plant has grown tremendously over time and is today the largest industrial district in Kyiv. It is

comparatively intact due to its remote location on the left bank. From left top to bottom right: orthophoto from 1934; project of the plant in 1934; topo plan from 1980; photo of the yard in 1936; orthophoto from 2017; photo of the plant from tram stop in 2019.

Source (from left top to bottom right): <http://starkiev.com/>; Journal “Socialist Kyiv”, 1934. №1-2. c.23; unknown; Journal “Socialist Kyiv”, 1936; google map; photo by authors.

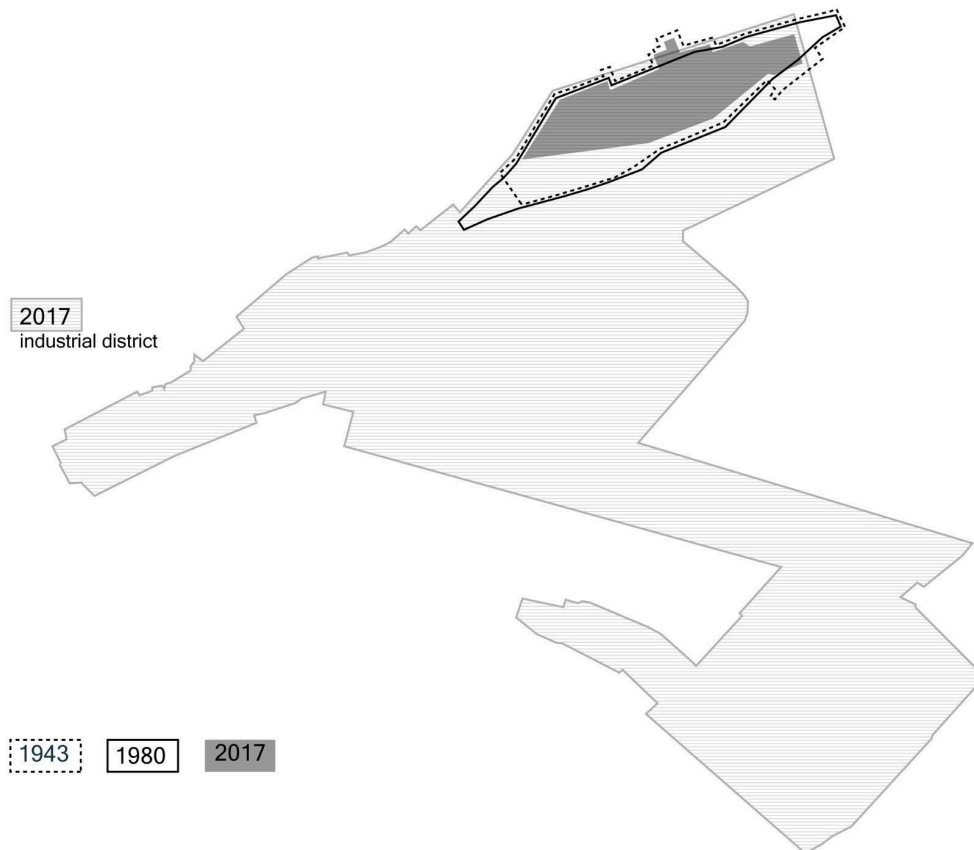
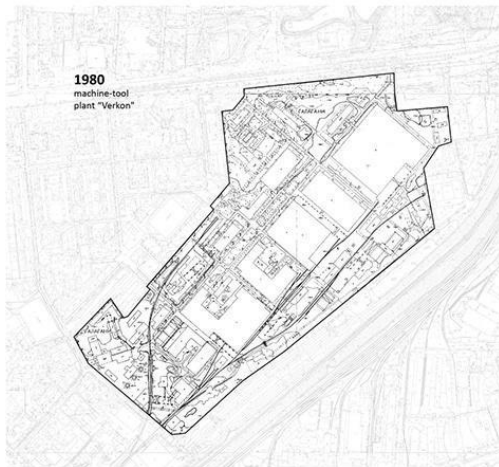


Figure 22. Spatial evolution of the Darnytskyy car-repair factory plant area, 1943 to 2017. Figure by authors.

1943



1980



2017

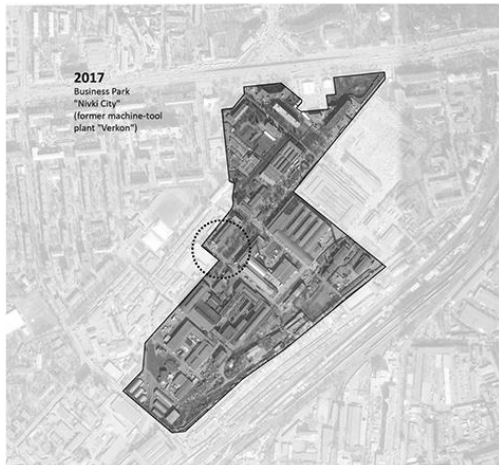


Figure 23. The Gorky Machine-tool Works in three periods, 1943 to 2017. The plant is currently being redeveloped for high-rise apartment buildings.

From top left to bottom right: orthophoto from 1943; project in 1936; orthophoto from 1980; photo of pavilion; orthophoto 2017; photo from alley.

Source (from top left to bottom right): <http://starkiev.com/>; Journal “Socialist Kyiv”, 1935: №11-12; Pat Kyivproekt archive; unknown; google map; photo by author from 2018.

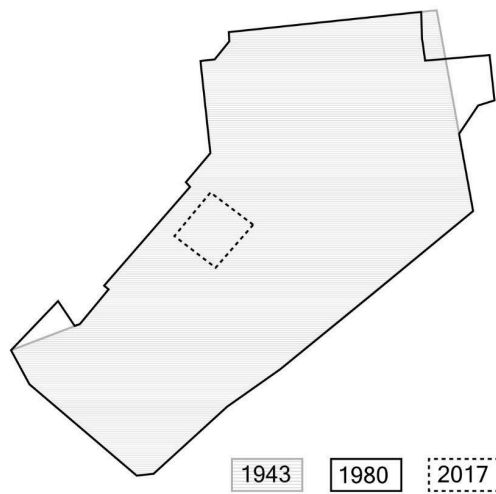


Figure 24. The boundary of the Gorky Machine-tool Works over time. Figure by authors.

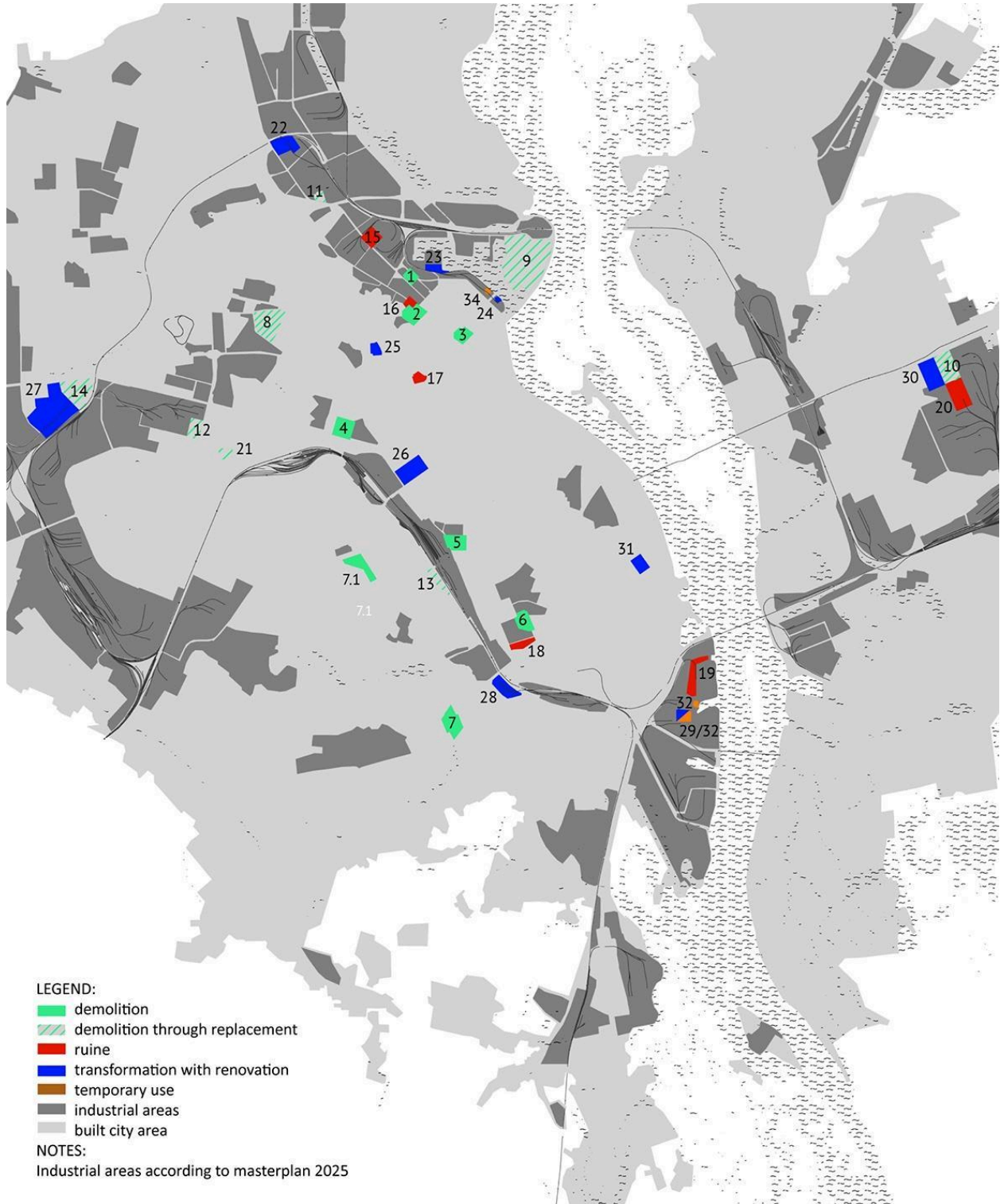


Figure 25. The diverse fates of Kyiv’s industrial legacy: demolition, ruin, renovation, temporary use, and continued industrial activity. While not every industrial area was surveyed for this study, industry does continue within a large area of Kyiv’s historic industrial districts. Figure by authors. See also Table 4.



Figure 26. Top: A sample of community perceptions of Kyiv’s ex-industrial landscape, from the map me happy project (mapmehappy.com). Bottom left, right: A temporary intervention in the “Tyhiy Hid” (One Small Step) project, 2014, in the Telychansko-Korchuvatyy district. Photo by Andrew Mykhailov.



Figure 27. Top: The Kyiv Shipbuilding and Ship Repairing Plant with buildings occupied by cultural industries highlighted. Bottom: KARZ-12 participants and events. Source: authors (top left); <http://karz-12.com.ua/> (top R, bottom L, R).