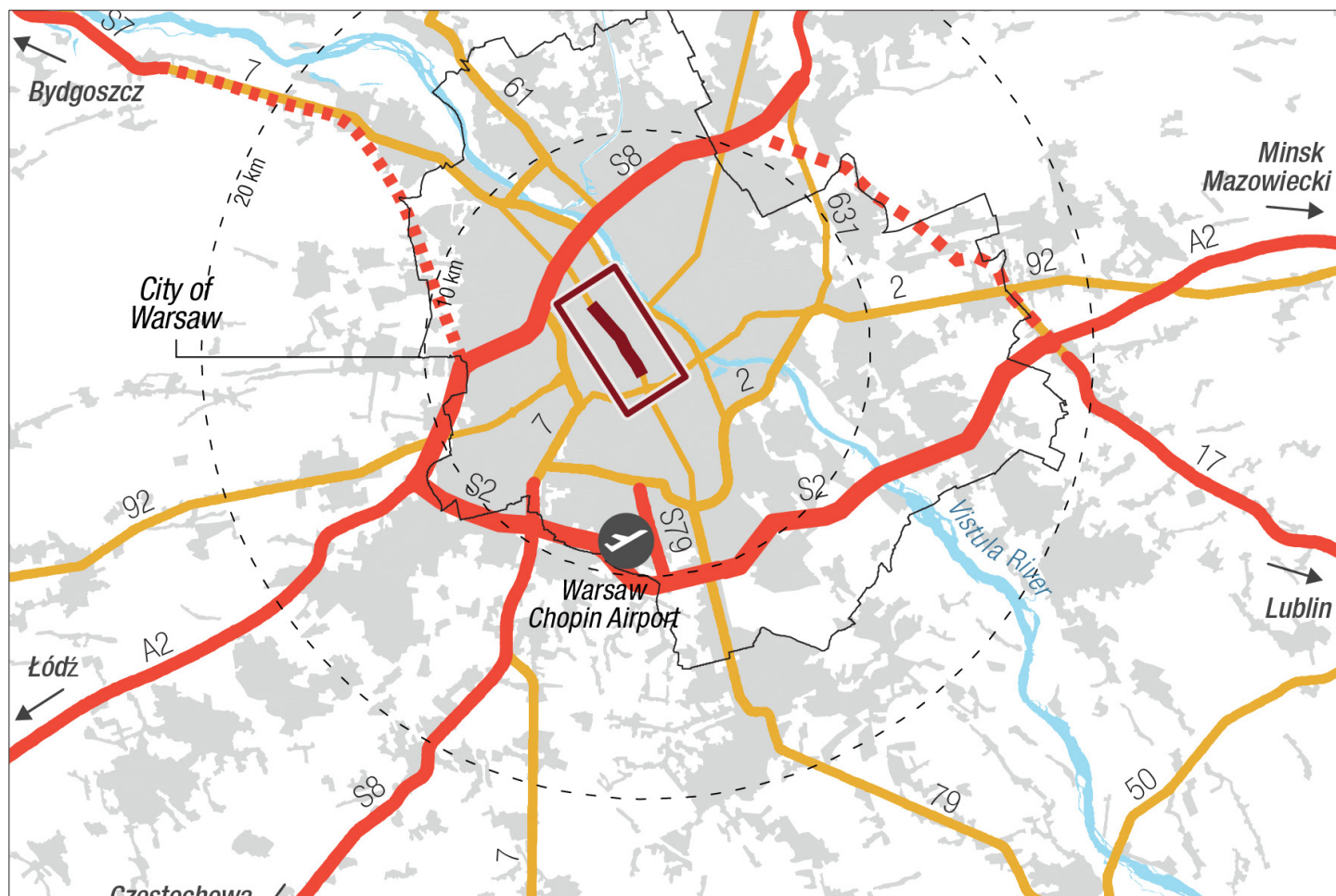


WARSAW, GREEN STREETS ?

JANA PAWŁA II AVENUE PROJECT



MARCH 2023

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MAZOWIECKIE BIURO
PLANOWANIA REGIONALNEGO
W WARSZAWIE



WARSAW GREEN STREETS? JANA PAWŁA II AVENUE PROJECT

Case Study Report for the METREX *From Roads to Streets* Expert Group
March 2023

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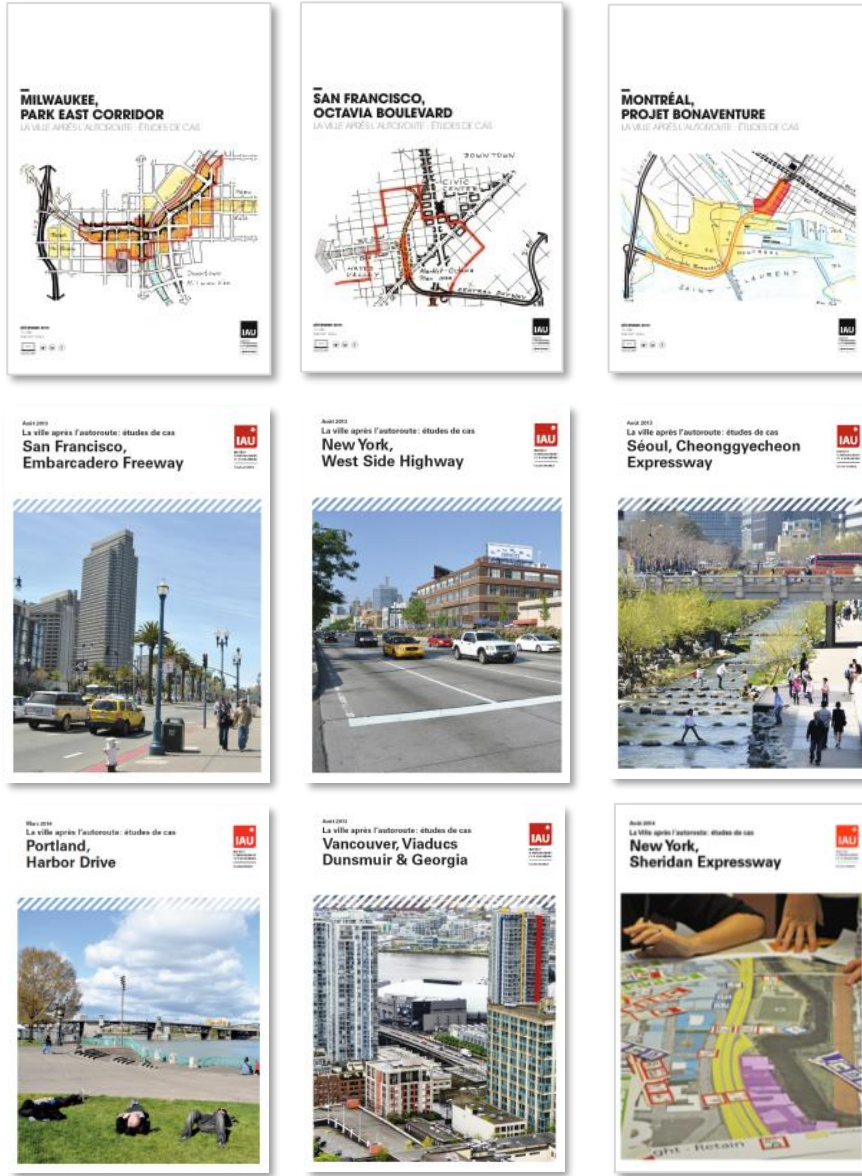
FOREWORD

CONVERTING HIGHWAYS, RETHINKING CITIES

All over the world, cities and regions are confronted with an undesirable and unsustainable legacy of the 20th century: the urban expressways and other main roads designed for traffic that create barriers between neighbourhoods, limit pedestrian and bicycle movement and sever access to open space. The high volumes of traffic these highways encourage are source of noise, dust and air pollution, raising health and social justice issues. Not only do they tend to reinforce social segregation, but they also hinder regeneration efforts. Urban highways and expressways often have negative impact on ecosystems, water systems and climate. On the long run, by providing seemingly easy access for vehicles, extensive highway networks tend to encourage car-centric lifestyles, urban sprawl, mono-functional uses of space, road-based logistics, which in turn leads to more traffic and congestion.

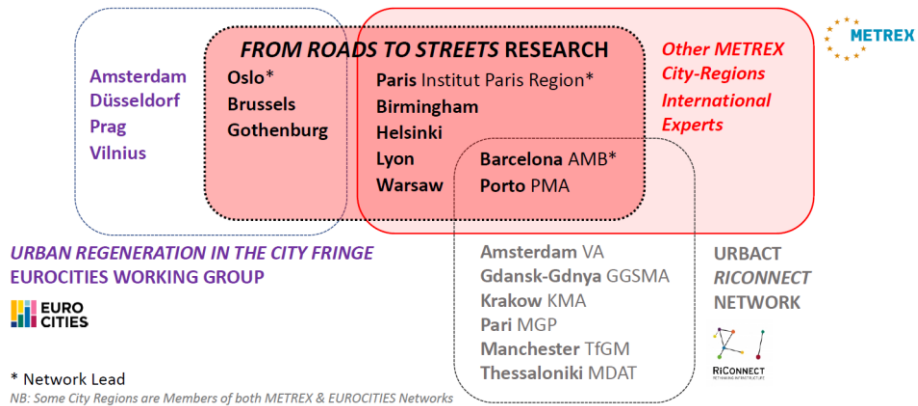
In the last decade, social and economic patterns have changed, resulting in growing aspirations for the vibrancy of city life and car-free living in denser, mix-use neighbourhoods and towns served by flexible, multi-use and greener public spaces. Cities and metropolitan regions respond to these trends by redesigning car-oriented urban and suburban fabrics with more intensive land-use supported by new metro, tramway or express bus networks. These projects are increasingly becoming catalysts of green development strategies; sustainable urban mobility plans and climate-neutral policies. Many city and metropolitan governments acknowledge the urgency of reducing drastically their automobile-based carbon footprint while restoring ecosystems with nature-based solutions. Highway transformation, removal or recycling may be part of the solution on all these issues.

The post-Covid contexts reflect a rapid and significant change in mobility, housing, working and leisure patterns, opening a new window of opportunity to reset our urban development and transport models. Highway transformation can help transitioning cities and regions towards more liveable, just and climate-neutral development patterns.



International case study reports on highway transformation
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FROM ROADS TO STREETS METREX EXPERT GROUP



* Network Lead
NB: Some City Regions are Members of both METREX & EURO CITIES Networks

The METREX EUROCITIES URBACT *From Roads to Streets* Learning Platform in 2022
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Learning from international experience

Many cities –including Portland, New York, Seoul and, recently, Paris– have successfully removed or transformed stretches of urban highways, replacing them with multi-use boulevards lined with mixed-use new development or even new linear parks and promenades. Why are they doing that? What happens with the traffic? What are the benefits and costs? How do cities and regions manage these projects? And how do they get public support for reducing car-space?

To find answers to these questions and inform ongoing projects and reflections in the Paris region, I initiated in 2010 a long-term research programme on *Metropolitan Avenues*¹ at the *Institut Paris Region*, the urban planning and environmental agency for the Paris metropolitan region².

As part of the programme, over twenty highway-to-boulevard experiences on three continents (America, Asia and Europe) were examined. Of these, nine cases were studied on-site, with their reports published mostly in French, with some also in English (*):

- Seoul *Cheonggyecheon Expressway (2013)*
- San Francisco *Embarcadero Freeway (2013)*
- Vancouver *Viaducts (2013)*
- New York *Westside Highway (2013)*
- Portland *Harbor Drive (2014)*
- New York *Sheridan Expressway (2014, 2020*)*
- San Francisco *Octavia Boulevard (2016)*
- Milwaukee *Park East Corridor (2016)*
- Montréal *Projet Bonaventure (2016; 2020*)*

The most significant result from this research is that these strategic metropolitan projects are complex and conflictual, but have long-term positive impacts on traffic and mobility, city regeneration and the quality of the urban environment, often far beyond the project boundaries. Some results in English can be found in a paper called *Reinventing Cities: From Urban Highway to Living Space*³ (2018) reproduced in the Appendix of this report.

This research has influenced projects in France, including the Paris Seine Banks pedestrianisation (2016) and the ongoing reflections on the future of the Paris Périphérique and the region's highways, starting with the organisation of an International Competition on the *Future of Grand Paris' Highways* in 2018⁴.

The METREX-led *From Roads to Street* joint learning platform

In March 2020, METREX, the Network of European Metropolitan Regions and Areas, launched a "*From Roads to Streets*" expert group to serve as a platform for the exchange of knowledge and experience on the transformation of urban highways into city streets (places to move, to stay, to live and to work in), as "*a key measure to transform the urban fringes of metropolitan cities and regions*"⁵. The Institut Paris Region -Planning and Environmental Agency for Paris Metropolitan Region- is the lead partner.

The METREX *From Roads to Street* group works in close cooperation and support of the EUROCITIES *Urban Regeneration in the City Fringe*⁶ working group. This group was created in April 2020 with eight participating cities: Amsterdam, Brussels, Düsseldorf, Lyon, Prague, Vilnius, Gothenburg and Oslo as the lead partner⁷. The purpose of this group is to exchange experiences on the conditions and methods for transforming urban fringes in three main directions: overcoming highway barriers, creating high quality public spaces, and managing radical land-use mix.

¹ *Avenues métropolitaines*. www.en.institutparisregion.fr/know-how/international/rethinking-post-carbon-cities.html

² Formerly Institut d'Aménagement et d'Urbanisme de la Région Île-de-France (IAU ÎdF). www.en.institutparisregion.fr

³ Urban Design #147, Urban Design Group UK, Summer 2018.

⁴ *Les Routes du futur du Grand Paris*, Forum Métropolitain du Grand Paris, Apur, Institut Paris Region, 2019.

⁵ Henk Bouwman, General Secretary of METREX. www.eurometrex.org

⁶ *Edge of Centre Transformation II, Urban Regeneration in the City Fringe*, EUROCITIES, April 2020.

⁷ Mathias Vestgart Project leader, City of Oslo.

The METREX *From Roads to Street* group aims specifically to further investigate the question of why and how converting traffic-oriented highways into streets could contribute to an environmentally friendly mobility, help design walkable, safe, socially balanced neighbourhoods, and be a driver for the revitalisation and intensification of fragmented, mono-functional, city fringes. The group draws upon the experience and expertise of its members in this field, and brings a regional, wide angle, perspective in the discussion.

METREX and EUROCITIES groups have worked in collaboration with the URBACT *RiConnect* action planning network bringing together eight metropolitan and transport authorities: Porto (AMP), Gdansk-Gdynia-Sopot (OMGGS), Krakow (KMA), Thessaloniki (MDAT), Amsterdam (VA), Paris (MGP), Manchester (TfGM), with the Barcelona Metropolitan Area (AMB) as the lead partner⁸. Until September 2022, *RiConnect* has worked on rethinking the mobility infrastructure in combination with metropolitan and local urban planning, to reconnect people, neighbourhoods, cities, and natural spaces.

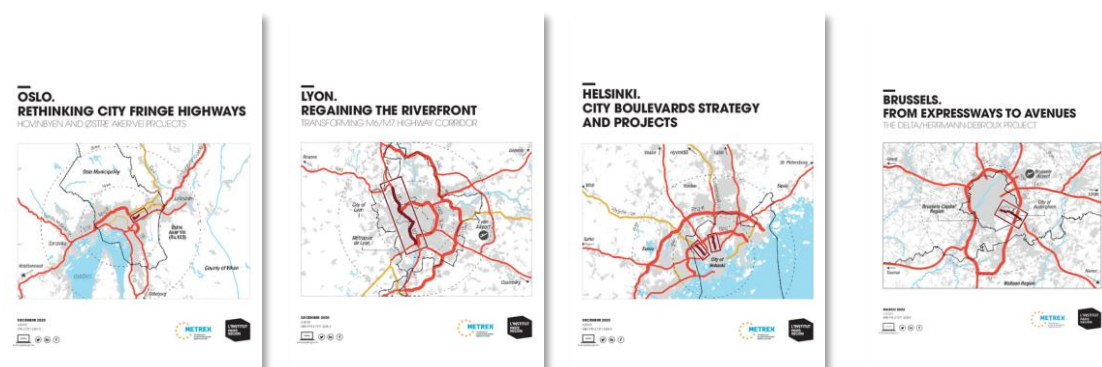
These three networks have joined forces to share knowledge, experience, and expertise on these complex issues, in order to strengthen strategic and creative planning capacities of cities and regions. The idea is for planners from different horizons both “to learn through examples, discussions and presentation of projects” and “to learn by doing, through participation of group members in the local reflection and planning processes”⁹.

The European Union’s policies, together with national government strategies, plays a major role in the planning, programming, and financing of highway networks in our cities and regions. The joint reflection of the networks aims at raising their awareness of the social and environmental impacts of these policies and the need to shift funding streams towards their environmental integration and urban transformation.

The METREX, EUROCITIES and URBACT networks’ learning platform has relied since 2020 on a series of events, both online and on site, such as group workshops, peer to peer cooperation; multi-actor transnational seminars; site visits; hands-on studios; and *ad hoc* and partner events including in Lyon (October 2021), Brussels (March 2022), Vilnius (June 2022), Barcelona (July 2022) and Amsterdam (October 2022). The work programme of the different networks covers a period of three years, extended to four due to Covid-19, with a final international event anticipated now in 2024.

A case study-based learning process

The knowledge-based learning process is based on case studies of ongoing projects of road transformation in European partner cities. Analysis and transverse comparisons are crucial to get a common understanding of local issues, strategies, planning approaches, reflections, and conflicts. Comparing scales, ambitions, framework policies, planning processes, and delivery instruments, can nurture the creative thinking of professionals from all networks to help find innovative and bold answers to the questions raised.



European case studies on urban and highway transformation published within the METREX Expert Group
L’Institut Paris Region/METREX © L’Institut Paris Region

⁸ Joan Caba, Project Leader, Urban Planning Department, Barcelona Metropolitan Area (AMB).

⁹ *Urban Regeneration in the City Fringe Project Plan*, EUROCITIES-City of Oslo, March 2020. Revised Sept. 2020.

To trigger the process, the Institut Paris Region initiated a research based on the voluntary participation from cities and regions taking part in one or more of the three networks.

Four case studies of urban and highway transformation projects have already been published with the help of local colleagues (many thanks to all contributors!) and can be downloaded for free on the Institut Paris Region's website¹⁰:

- Helsinki. *City Boulevards Strategy and Projects (December 2020)*
- Oslo. *Rethinking City Fringe Highways. Hovinbyen and Østre Aker Vei Projects (Dec. 2020)*
- Lyon. *Regaining the Riverfront. Transforming M6/M7 Highway Corridor (Dec. 2020)*
- Brussels. *From Expressways to Avenues. Delta / Herrmann-Debroux Project (March 2022)*

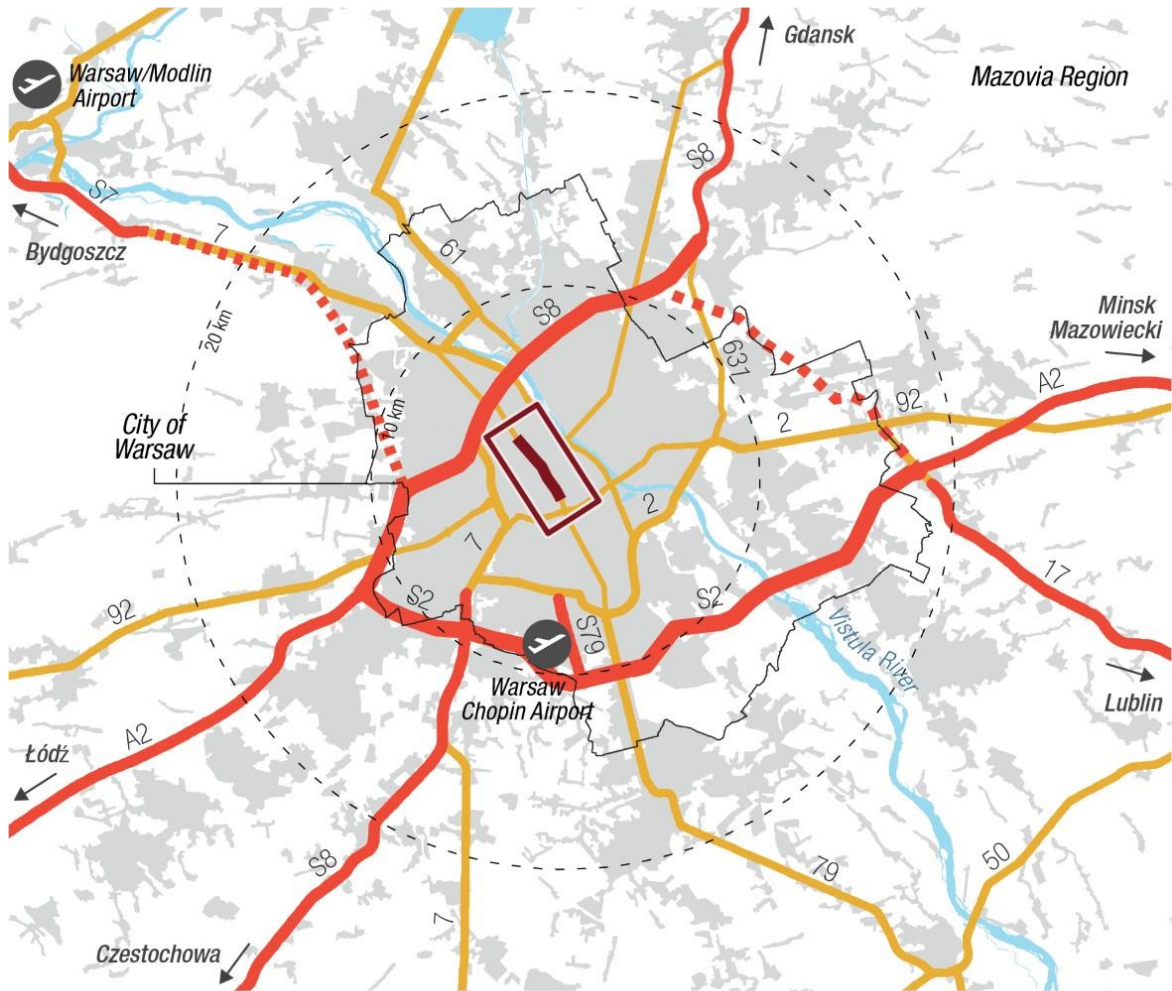
Other city-regions 'from-roads-to-streets' experiences is also being documented, including those of Amsterdam, Barcelona, Birmingham, Gothenburg, Nantes, Paris, Porto, Prague and Warsaw.

This report is about *Warsaw's Green Streets* programme with the *Jana Pawła II (John Paul II) Avenue Project* as a pilot-project. The project aimed at upgrading a large 8 to 10-lane road cutting through Warsaw's Central Business District into a greener, more-pedestrian and bike-friendly boulevard, as part of a larger strategy for humanizing the city.

The experience of Warsaw can bring food for thought for many cities wishing to move on from car-oriented thinking to 'green streets' action. I hope you will find food for thought and action in this report.

Paul Lecroart
Chair of the METREX *From Roads to Streets* Expert Group
December 2022

¹⁰ www.en.institutparisregion.fr/international/from-expressways-to-boulevards



- ▬ Ring highways
- - - Planned highways
- ▬ Other highways
- ▬ Other main roads and expressways
- ▬ Axis subject to transformation (John Paul II Avenue)
- Project area
- Municipal boundary (City of Warsaw)

N 0 10Km

© L'INSTITUT PARIS REGION 2020
Sources: OpenStreetMap, ViaMichelin,
Corine Land Cover, GADM



The Jana Pawła II Avenue project area within the road network of Warsaw and the central part of the Mazovia Region
© Mazovia Region/Institut Paris Region

WARSAW, GREEN STREETS? THE JANA PAWŁA II AVENUE PROJECT

The *aleja* Jana Pawła II (John Paul II Avenue)¹¹ crosses through the centre of Warsaw, the capital and largest city in Poland, home to 1.8 million inhabitants in an area of 517 km². The larger Warsaw metropolitan area covers ten counties and 72 *communes* and has a population of over 3 million people for just over 6200 km². Warsaw metropolitan area lies in the central part of Mazovia region (35,600 km²) which has a population of 5.4 million inhabitants.

As a capital city, Warsaw is divided into eighteen separate districts, each with its own district council. Most of the powers lie however in the hands of the central city authorities, including the direct administration of major streets and urban planning. The City-President (Mayor) of Warsaw -currently Rafał Trzaskowski- is directly elected by the citizens.

The Warsaw metropolitan area has experienced a strong and steady rate of economic and demographic growth. The population in 2021 was just over 1,860,000, an increase of over 160,000 people since 2010¹². Over 300,000 refugees from Ukraine are estimated to have settled in Warsaw since the beginning of 2022.

The Warsaw metropolitan area has seen an even more rapid demographic expansion in the last decades, combined with both urban sprawl along main roads, and around towns and villages. This uncoordinated development results in a growing pressure to expand the road network to ease traffic flow in and out of the city. Within the city itself, many boulevards have been widened in the last decades to make room for car-traffic and car-parking. The *Green Streets* programme of Warsaw aims at reversing this trend by giving space back to people and to greenery.



Warsaw Central Business District seen from the Palace of Culture. To the left the Złote Tarasy shopping mall and the Central Station. In the background, the Jana Pawła II Avenue.

© DR

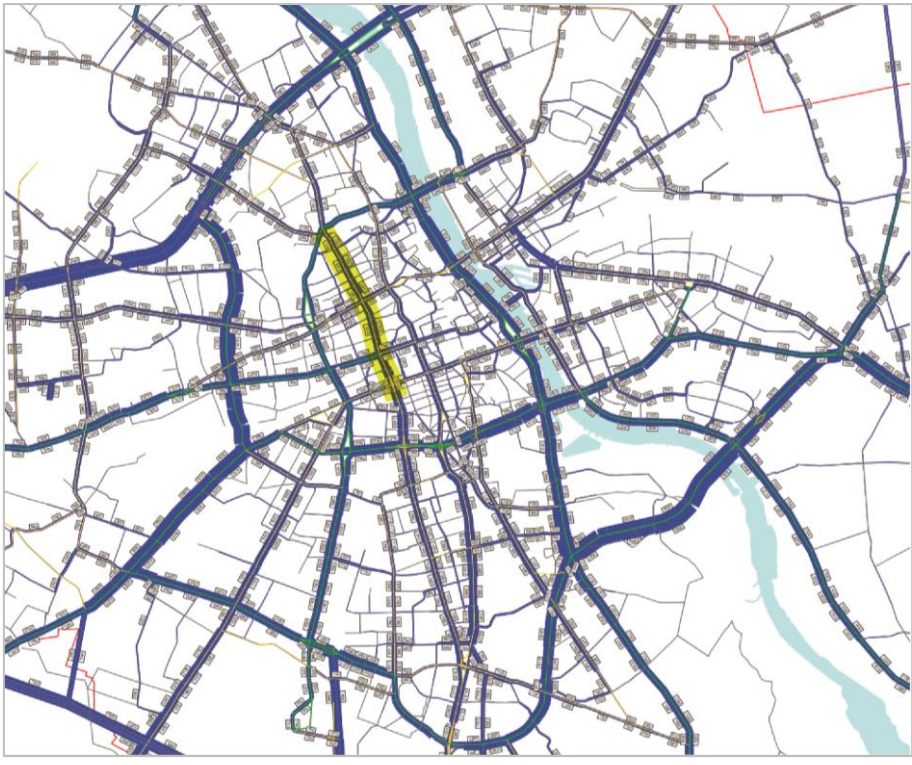
¹¹ In this report we have chosen to refer to this axis as "Jana Pawła II Avenue" keeping part of its Polish name.

¹² Statistics Poland-BDL, <https://bdl.stat.gov.pl/>



Rail transport network of Warsaw in 2022 showing the two metro lines (blue) and the dense tramway network serving the city.

Jana Pawła II Avenue is located at centre as a north-south tramway axis (lines 17, 33, 78) parallel to the metro line 1 © Warsaw Municipal Transport Authority (ZTM)



Road traffic volumes in central Warsaw in 2015. Traffic intensity in Warsaw is higher than in many other cities.

The Jana Pawła II Avenue at centre is part of a grid of boulevards offering has many north-south alternatives. © Public Roads Authority (ZDM) of Warsaw

1. Background

1.1. The City in Context: Mobility Planning in Warsaw

Since the 1990s, Warsaw has developed following a predominantly car-oriented model, with a continuous flow of investments in the construction of new roads and car-based, private-led, real estate development. As a result, the share of non-motorised transport tends to be low by European standards (18% walking, 3% cycling in 2015), while the share of car trips has increased by a third in ten years (from 24% in 2005 to 32% in 2015). As a side effect, there has been a growing discomfort of pedestrians and cyclists due to drivers' dangerous behaviour. This has been identified by residents as the greatest danger in the city (survey conducted in autumn 2020)¹³.

However, owing to a comprehensive metro and tramway system, Warsaw has until now succeeded in maintaining a high modal share of public transport with 47% in 2015. This share has been decreasing over the years and investment in public transport has so far focused on the extension of metro lines. The first major tramline investment, the Wilanow-Srodmiescie line, has recently officially started and is expected to be completed by the end of January 2024. The tramway will have 31 stops covering a distance of approximately 8 km. However, implementing a tramway lane will not have a major impact on car-dedicated roads.

Several improvements to the pedestrian infrastructure have been realized in recent decades, such as banning private cars on parts of the 'Royal Route' (Nowy Świat and Krakowskie Przedmieście streets in 1996 and 2008, respectively). However, taxi and bus traffic remain significantly present on these streets and no bicycle infrastructure was built. Although cycling infrastructure has improved in quantity and quality in recent years, it is often provided at the expense of green and pedestrian areas, rather than by redistributing road space.

Various measures have been implemented to reduce the impact of cars on pedestrian circulation such as limiting the numbers of parking bays on sidewalks and providing more -and safer- street level crossings. The latter was the subject of several grassroots actions, such as petitions and appeals by the district authorities.

Since 2018, there has been a growing interest in the concept of "green streets": a new *Green Street* programme has been developed and has been the subject of a public consultation. Although it mainly focuses on greening and planting along roads, the plan also calls for a redistribution of road spaces. However, this remains a secondary issue and has not yet been implemented.

1.2. Regional Planning & Mobility Strategies

The Regional Development Strategy of the Mazovia Region

Warsaw's attractiveness, as a place of work and concentration of higher-level services, has made the city and its urban functional area a destination for migration from the Mazovia region and other regions of Poland. This massive suburbanisation has led to a disintegration of the spatial structure with a lack of cohesion and continuity of development, as stated in the *Regional Development Strategy of Mazovia* adopted in 2022¹⁴. This has led to a deterioration of the quality of public space, increased pollution of the natural environment, and resulted in a depreciation of the quality of living of its residents.

One of the drivers of urban sprawl is providing solutions and infrastructures that encourage car use, including roads that can handle large volumes of traffic. Development of roads in Warsaw metropolitan area is often oriented to accommodate a maximum number of cars, instead of fulfilling the role of urban streets. This leads to an increase in the number of vehicles entering cities but does not necessarily improve accessibility: the number of cars in the metropolitan area increased by nearly 45% between 2013 and 2021. An additional negative effect of expanding automobile infrastructure is the segregation of urban spaces, limiting accessibility within the urban areas, especially for non-motorized traffic. There is a lack of efficient public transport services in suburban areas.

¹³ Barometr Warszawski, October 2020, <https://um.warszawa.pl/waw/warszawa-w-liczbach/barometr-warszawski6>

¹⁴ *Development Strategy of the Mazovia Voivodship (Region) 2030+*, Mazovian Office of Regional Planning in Warsaw, 2022.

Bicycle infrastructure is also lacking in the metropolitan area. Despite a rapid increase in the length of bike lanes (from 760 km to 2340 km between 2011-2019), bike routes remain disconnected and inadequately maintained, making them poorly functional and prone to accidents.

To counteract this scattered development, the *Regional Development Strategy of Mazovia* published in 2022 suggests a more effective land use planning, promoting multi-functional development served by multi-modal, non-motorized public transport. In addition to the construction of new railway lines, one of the solutions to reduce car use is to create a public transportation system at the regional scale. Building transfer hubs at railway stations in rural and suburban areas connected to this bus service could ensure convenient transfers. It opens the possibility to leave a bike or a car at stations.

The Strategy for the Development of the Warsaw Metropolitan Area until 2030

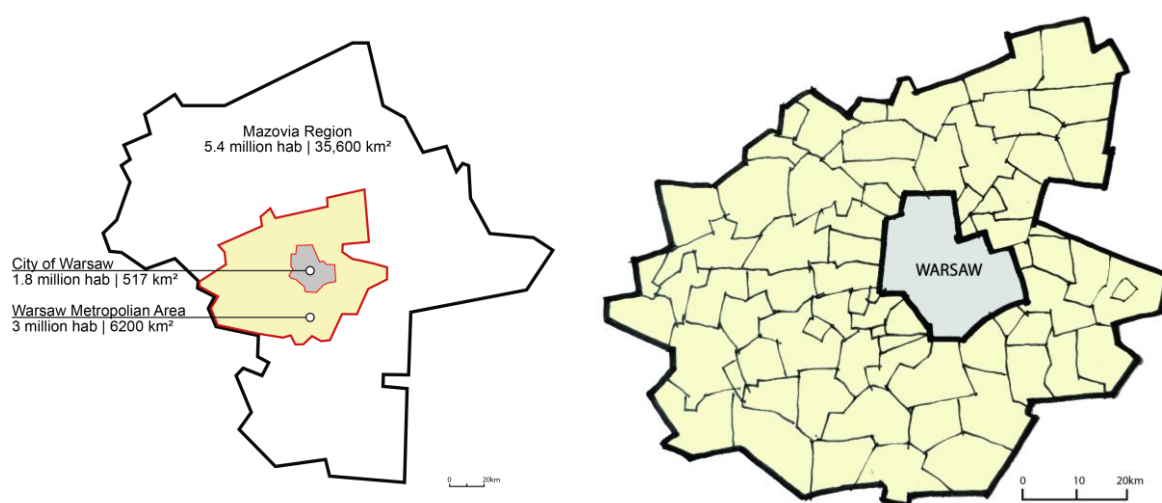
The Warsaw Metropolitan Area (*Obszar Metropolitalny Warszawy-OMW*) is a loose system made up of 71 urban and rural *communes* centred around the capital city (Warsaw): it needs to intensify its cooperative action to respond to the challenges it faces. The *Warsaw Metropolitan Area Development Strategy 2030* report published in 2015¹⁵ is the result of a joint work between local governments of the Warsaw Metropolitan Area, representatives of the business, academic community and NGOs.

The *Strategy 2030* is a non-binding document whose main objectives are to deepen the cooperation between members of the metropolitan area. It attempts to ensure mobility for OMW residents through the integration of the public transportation system, creates a modern metropolitan space through comprehensive planning, provides residents with broad access to cultural and natural resources, and strengthens OMW as a hub for economic growth.

The *Strategy 2030*'s mobility objectives suggest respecting a new hierarchy of metropolitan modes of transport: pedestrians first, then bicycles, public rail transport, public road transport and last, and least favored, is solo car-use.

The implementation of this goal requires a number of actions such as:

- the creation of a coherent and standardized system of bicycle routes in the metropolitan area,
- traffic calming zones, pedestrian and bike paths along busy suburban roads,
- the support of the implementation of car sharing/urban car system solutions,
- a public transportation accessibility audit for people with limited mobility.



Map of the Mazovia Region showing the Warsaw Metropolitan Area in yellow and the City of Warsaw in grey (left). The Warsaw Metropolitan Area (OMW) is a voluntary association of 71 municipalities around the City of Warsaw
© Institut Paris Region

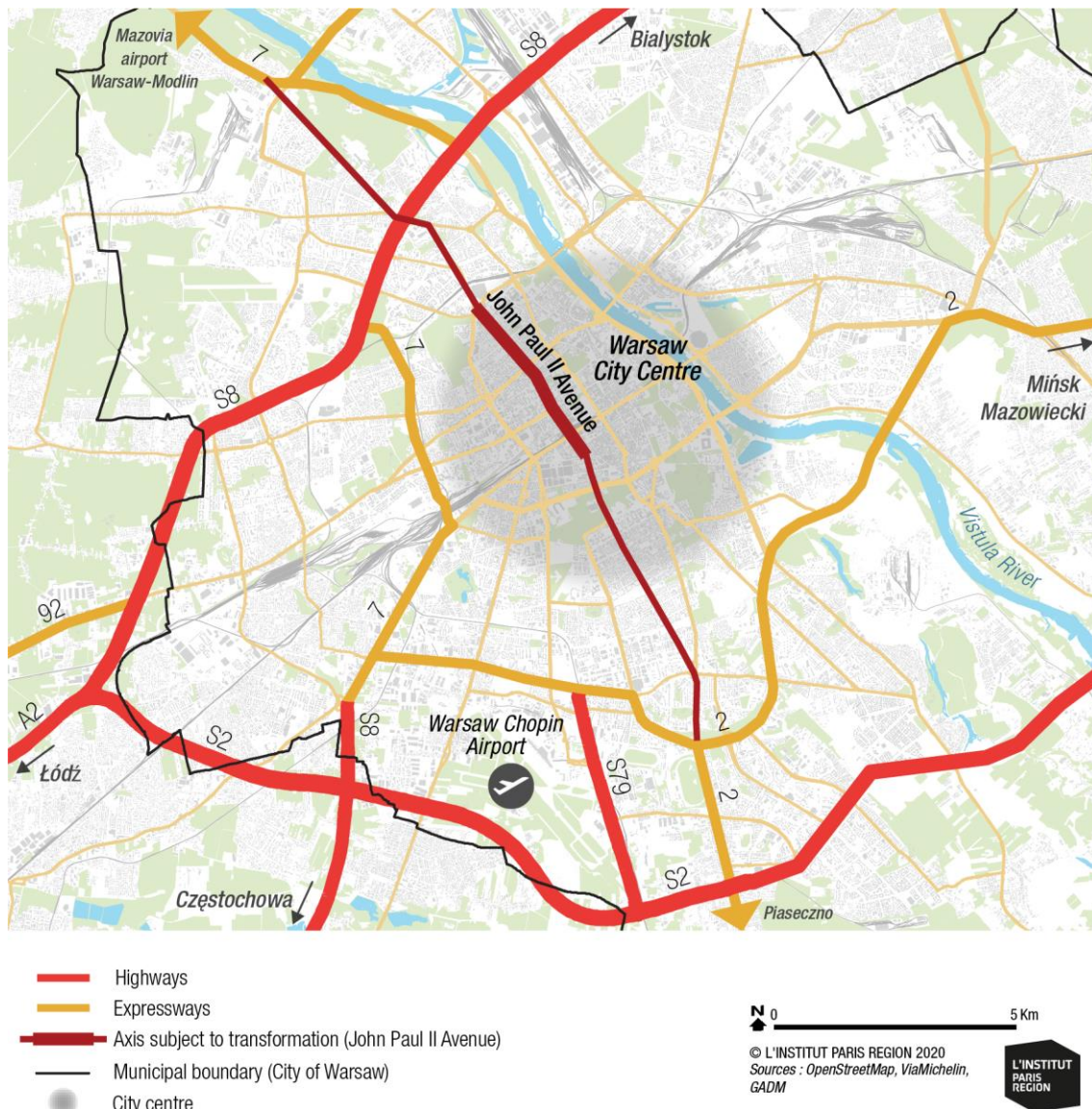
15 *Warsaw Metropolitan Area Development Strategy 2030*, City of Warsaw, 2015

2. City Strategy for the Central Area and Jana Pawła II

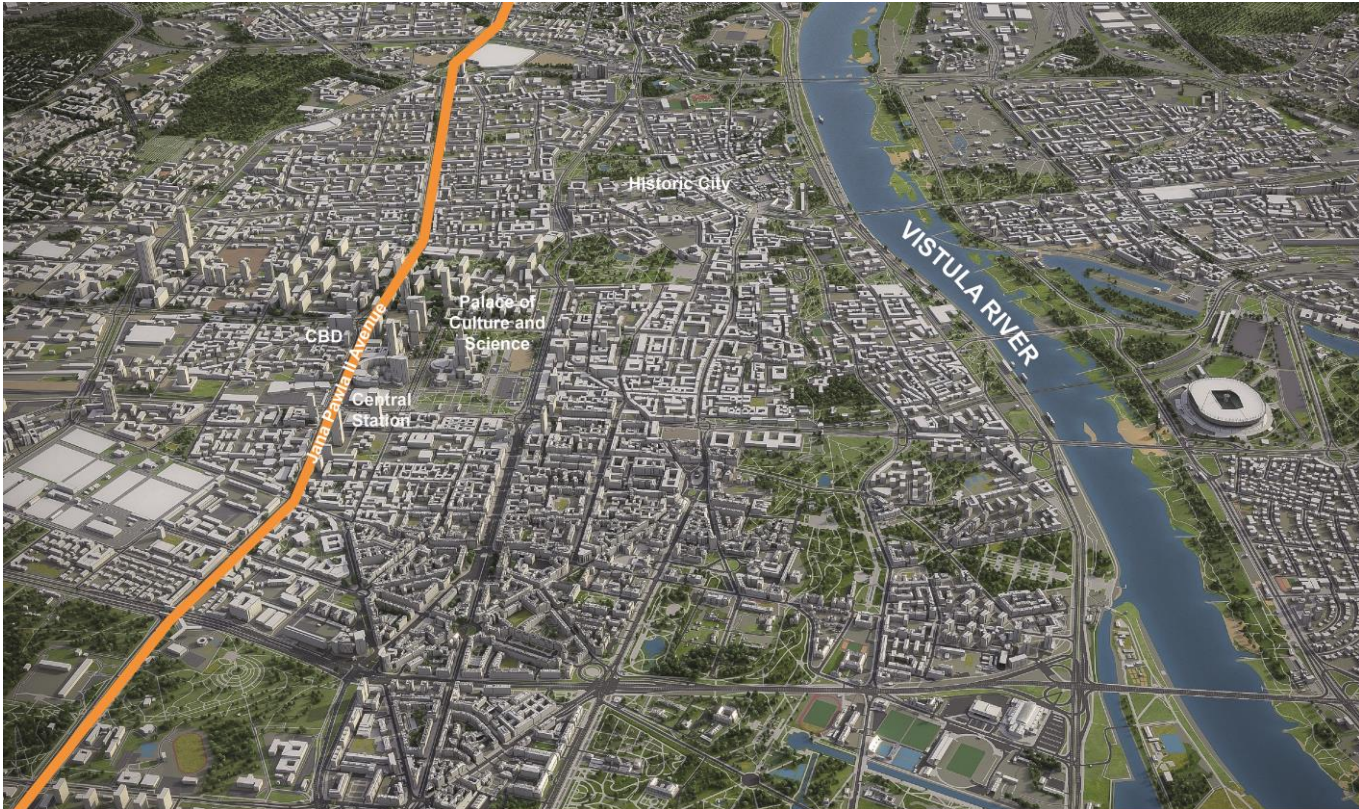
The Jana Pawła II Avenue upgrade project is part of a comprehensive renovation plan for Warsaw's city centre, which aims to provide livelier, greener, and safer spaces for pedestrians and cyclists. The programme responds to the guidelines set by the *Warsaw 2030 Strategy* for the future development of the city and is delivered by the Public Roads Authority (ZDM) of the capital city of Warsaw.

The *Green Streets* programme put forward by the Warsaw Greenery Authority (ZZW also referred to as the Green Board of the Capital City of Warsaw), established in 2016, aims at transforming several dozen streets across the city. The process started by analysing the current conditions of 40 pre-selected streets from different parts of Warsaw and collecting information on the planned investments in the area. The next step consisted in identifying the needs of all its users through public meetings and workshops prior to defining a concept. An architect and a landscape architect were then commissioned by the ZZW to tender competition procedures on 30 selected streets in order to select teams of designers in charge of making detailed design proposals for each street.

The Jana Pawła II Avenue upgrade project is considered a flagship project for the upgrading of city centre streets.



The Jana Pawła II Avenue (John Paul II Avenue) in the street network of Warsaw
© Institut Paris Region



A 3D view of Warsaw City Centre looking north with the Jana Pawła II Avenue to the left. Vistula river runs to the right.
 Source: City of Warsaw © L'Institut Paris Region / Meta Group



Aerial image of the study area. The section of the road that has been subject to recent works is represented in red. It is located inside the perimeter affected by the programme for the *New Warsaw City Centre*.

Source: City of Warsaw © L'Institut Paris Region/Google Earth (2018)

2.1. The Green Streets Programme

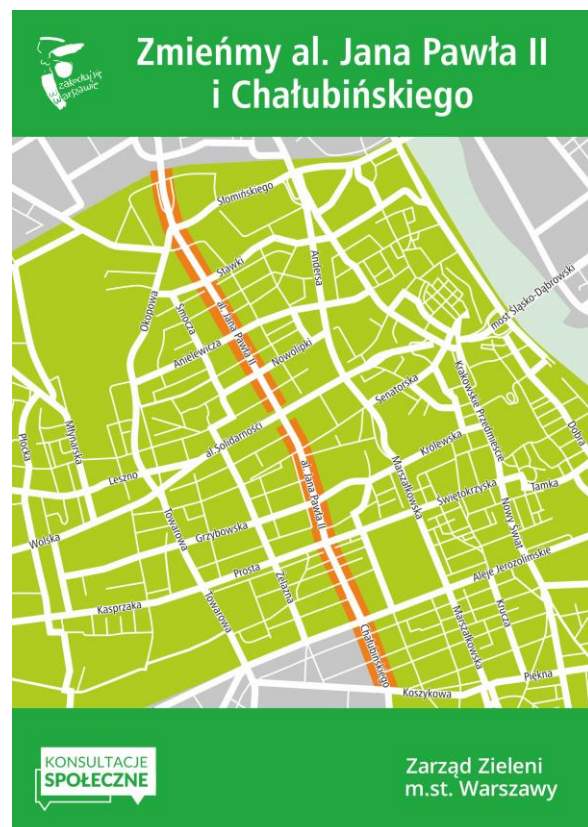
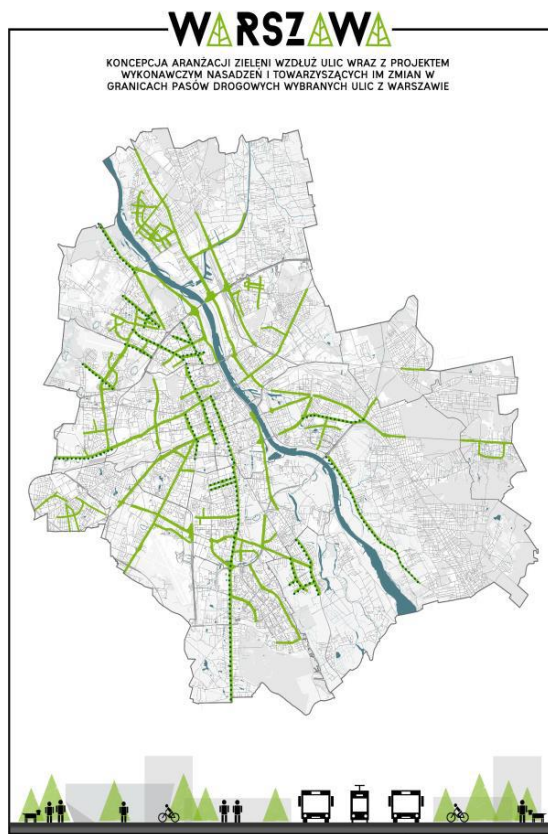
The *Green Streets* programme was initiated in 2018 by the capital city of Warsaw, aiming at transforming city roads into livelier, greener and safer streets for all users. The Jana Pawła II Avenue upgrade project, realized under the leadership of the Public Roads Authority, incorporated some of the results of the programme.

A consultation process was launched in 2018 to green several streets. Jana Pawła II Avenue had the following agenda:

January-February 2018: The first phase of the public consultation consisted in collecting information on the needs of the residents regarding streets greening. A short summary was then published as a compilation of views and concerns from the consultation phase. The designers then defined a street greening concept, which was evaluated by a steering committee before the final design was adopted. In this first phase, proposals were collected on the location of green spaces, the provision of benches and litter bins, and the widening of pavements and provision of new pedestrian crossings.

April 2018: The second phase of the public consultation consisted in gathering feedbacks on the chosen concept. Eighty-five responses were collected, covering the following topics: choice of vegetation and species, additional street furniture, provision of underground parkings, widening and improvement of cycle lanes and intersections.

July 2019: Publication of the final concept and report for the transformation and greening for the Jana Pawła II Avenue. At this stage, the project for the new avenue was integrated in the *New Warsaw City Centre Programme*, though it based mostly on the earlier Public Roads Authority version (see p. 23).



The network of streets included in the *Green Streets* programme (left) and the initial stretch of Jana Pawła II Avenue and Chałubińskiego Street proposed for the 2018 public consultation (right).

© Warsaw Greenery Board

2.2. #Warsaw2030 Strategy: Attractive Public Space

Adopted by the City Council in 2018, the #Warsaw2030 Strategy outlines a vision and objectives for the city's development policy until 2030. It was the culmination of two years of work, which involved the local community, experts, and institutions responsible for the implementation of the strategy. The strategy is based on three main pillars: an open metropolis, active residents and user-friendly spaces. As part of its strategic objective to provide a functional space in the city, several operational objectives were set to meet the needs of people moving around the city: the provision of an attractive public space, the preservation of a clean natural environment and the development of a convenient transport system.

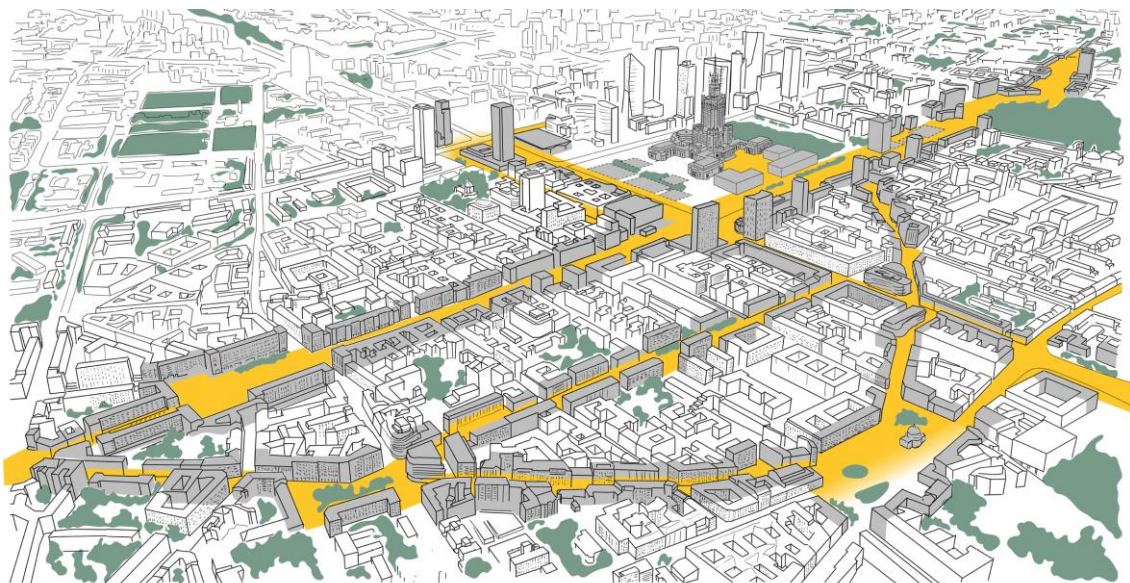
These objectives include the improvement of streets and avenues to ensure the safety and usability of public spaces, the removal of architectural and spatial barriers, and the shift towards a more pedestrian-friendly environment. The interventions on Jana Pawła II Avenue are in line with these objectives. The operational objectives are intended to be implemented through specific programmes comprising detailed executive documents. Each of them will in turn be composed of diversified projects, launched by the City of Warsaw together with its subordinate organisational units and district offices. The main source of funding will be the City of Warsaw, although external resources, both private and public, may be needed to implement some actions.

2.3. Programme for the *New Warsaw City Centre*

One of the specific initiatives developed to deliver the 2030 Strategy is the programme for the *New Warsaw City Centre*. Presented and launched by City President Rafał Trzaskowski in 2019, this programme includes the implementation of green design solutions for public spaces, new cycle-friendly routes, pedestrian crossings, as well as lively squares and streets, including main road axes. Within the central part of the city, the *New Warsaw City Centre* programme incorporates the Green Streets programme.

The upgrading of Jana Pawła II Avenue is then considered a flagship project in terms of pedestrian and cycling infrastructure and greening, laying the foundations for other future projects. Investments are directed towards the design and implementation of several projects within the framework of this strategy, most of them through competitions.

Some of these projects have already been completed, others are under way. This is the case for the modernisation and greening of several sections of Marszałkowska Street (see image below, map p.18 and images p.35) and the implementation of additional pedestrian crossings, or the construction of a bicycle-pedestrian bridge over the Vistula River, which is expected to be built within the next two to three years. Calls for tenders have also recently been announced for the improvement of several street sections on the eastern side of Jana Pawła II Avenue.



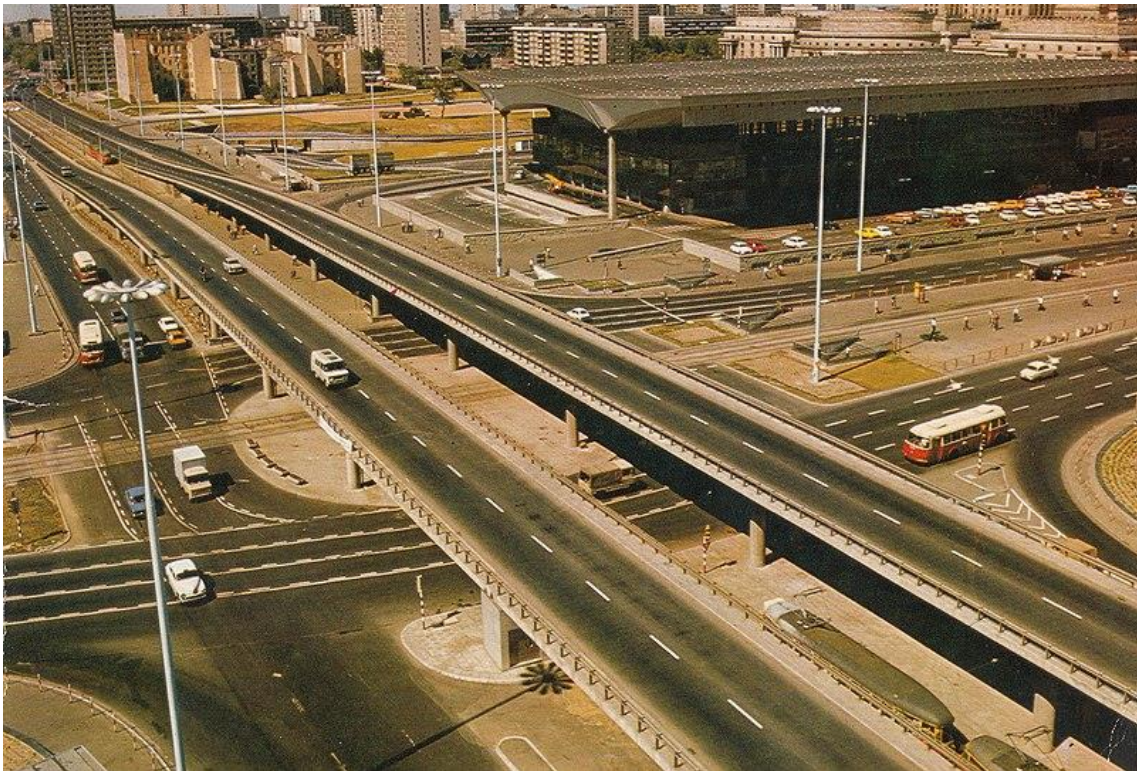
A vision of the ambitious street improvement programme for the *New Warsaw City Center*. Marszałkowska Street is at centre of image and Jana Pawła II Avenue is at the back, behind the Central Station building. © City of Warsaw (*New Warsaw City Centre*, 2020)



Streets to be upgraded included in the programme for the New Warsaw City Centre
© City of Warsaw (Programme for the New Warsaw City Centre, 2020)



The post-war Jana Pawła II Avenue (then Julian Marchlewskiego Street) in 1965 north of Warsaw city centre, structuring the Muranów district rebuilt according to "socialist realism". A monumental tramway avenue with large green sidewalks © Zbyszko Siemaszko / Forum



The transformation of Jana Pawła II Avenue into a highway in the late 1970s. Despite low traffic space is for cars © DR

3. The Jana Pawła II Avenue Project

3.1. The Jana Pawła II Avenue *Before*

The aleja Jana Pawła II (John Paul II Avenue) is one of the main structural axes of Warsaw, running from north to south, from Wojska Polskiego avenue close to the northern ring highway (S8) to Jerozolimskie Avenue and extending into Chałubińskiego street. It cuts through the districts of Wola, Śródmieście and Żoliborz, and crosses some of the most central parts of the city, such as the Central Station area and the Central Business and Commercial District.

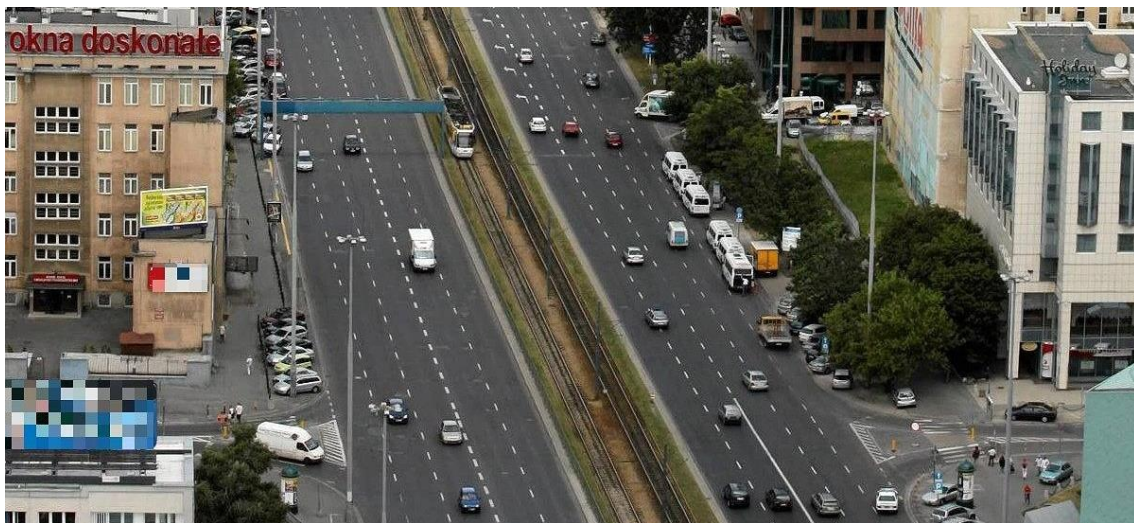
The Jana Pawła II Avenue was planned during the inter-war period, but the high cost of expropriating land in such a dense area of the city prevented work from starting until after World War II. Work was carried out between 1955 and 1959 as part of the city's main north-south route. The road was built on the ruins of the Warsaw Ghetto and other areas that had been destroyed during the Warsaw Uprising.

The surrounding area was developed in a markedly socialist style between 1949 and 1967 with the construction of several housing estates (Muranów South, North and West). From 1972 to 1976, a 2+2 lane flyover was built as part of the new Central Station along with a system of underground passages. Originally named after Julian Marchlewski, the road was given its current name in 1990. Starting in the 1990s, the western side of the road was developed with mainly free-standing office buildings, leaving the ground floors with little or no activity.

Until 2020, the 4 km-long avenue consisted of 6- to 10-lane roadway (3+3 to 5+5) separated by a median dedicated to the tramway. Its 60-metre-wide section and the tramway median separator create a large barrier between the two sides of the road. Before the improvement project, the sidewalks were primarily used as parking spaces, leaving only a narrow stretch for pedestrians and some vegetation. All intersections have traffic signals, often in large roundabouts.

The road was a barrier for pedestrians and cyclists. In the 750m long southern section (from Koszykowa Street to the ONZ roundabout), Jana Pawła II Avenue had no pedestrian and bicycle crossings. The number of crossings increases towards the more residential areas to the north, but still remains relatively low: one every 230 m (for comparison, Avenue des Champs-Élysées in Paris or Meridiana Avenue in Barcelona have a pedestrian crossing every 75 to 80 m).

The areas adjacent to the road are classified in the official plan referred to as the *Study of Conditions and Directions of Spatial Development* (adopted in 2006 and updated ever since) as medium-rise residential areas, for the northern section of the road, and as multi-functional areas with commercial functions on the southern section. The commercial areas include a large complex, the Złote Tarasy (Golden terraces), a large-scale retail mall, office and entertainment center of over 200,000 m². On the other side of Central Station, the area includes a new office building, possibly one of the tallest in Europe. The commercial and office areas contribute significantly to the highway traffic. Traffic volumes are very high for a city centre avenue with a total of over 68,000 vehicles per day and over 4,000 vehicles hourly in 2018, according to the Public Road Authority's data.



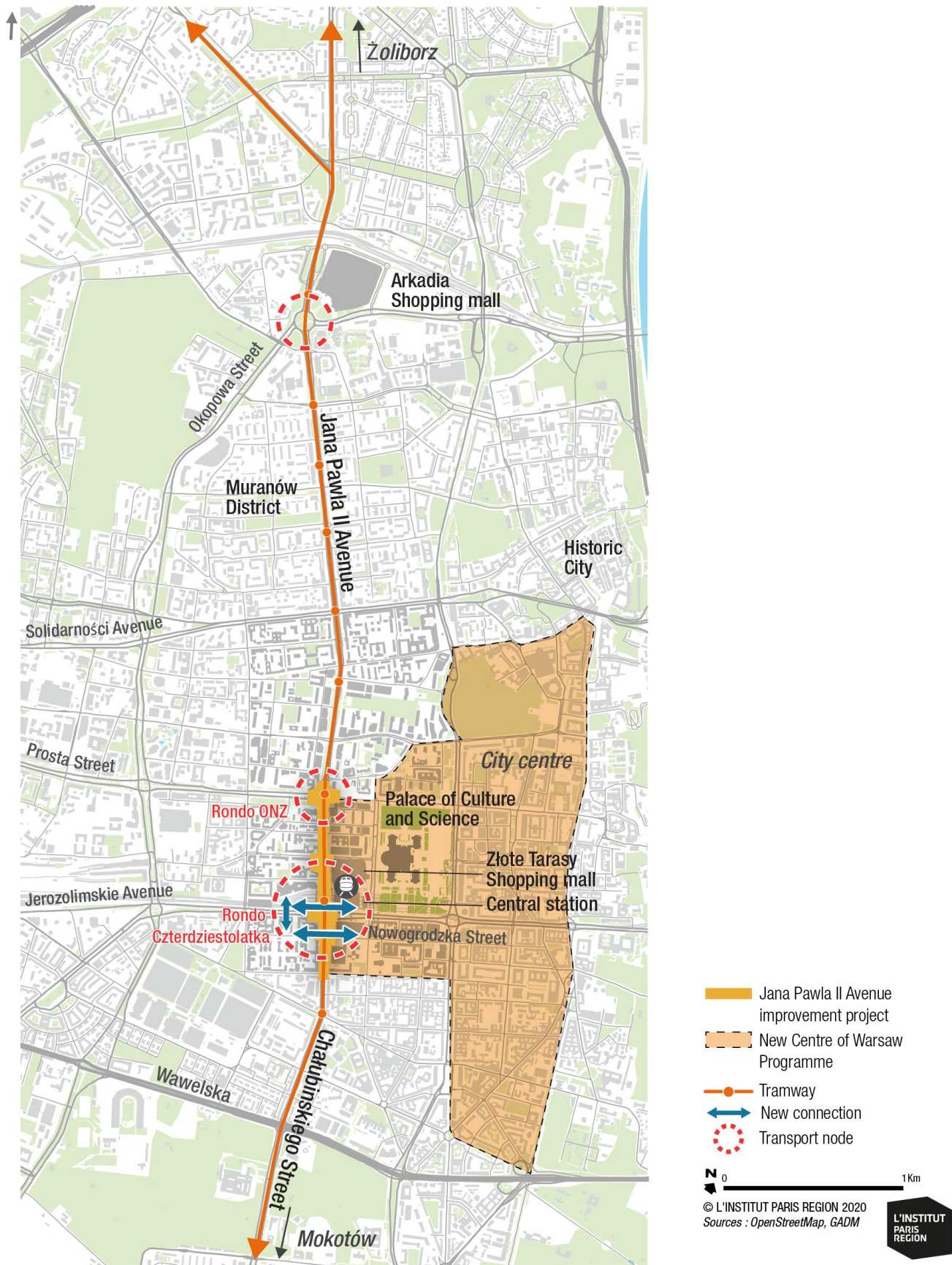
The Jana Pawła II Avenue in central Warsaw was transformed in the 1970s into a 10-lane wide highway (5+5) with narrow sidewalks and a median acting as a barrier for pedestrian, bike and car movements (2015). © Jacek Łagowski



Jana Pawła II Avenue in July 2020 north of ONZ roundabout where the roadway is six lanes-wide, with short side-lanes for diagonal parking. The tramway line runs in the median without any separator. Sidewalks are narrow and show little urban activity.
 © Cybularny



Peak time congestion on the flyover above Jerozolimskie avenue on Jana Pawła II Avenue / Chalubinskiego street as before 2020. Although the tramway carries more people, most of the space is devoted to cars with up to 12 lanes for general traffic.
 © Istockphoto



New Warsaw City Centre programme and project area for the Jana Pawła II Avenue upgrading
 © Institut Paris Région

3.2. Transformation Process and Timeline

The Jana Pawła II Avenue upgrading project is part of the comprehensive programme for the *New Warsaw City Centre* endorsed by the current City President. It's the operational component of the #Warsaw2030 Strategy, which sets the main guidelines for the future development of the city. The same axis has been studied for transformation in the framework of the *Green Streets* programme launched by the Warsaw Greening Authority (ZZW). Unlike the implemented upgrading, the "Green Streets" proposal for Jana Pawła II Avenue covered the entire length of the axis (4 km) and foresaw the transformation of the existing flyover near the Central Station into an elevated linear park. However, for the time being, this project is not on the agenda.

The timeline of event since 2015 can be summarized as follows.

Early 2015: Citizens protested over the lack of level crossings next to the central station, which resulted in an additional walk of 1 to 3 km to cross the street for those who could not use the stairs. The protests highlighted the need for level crossings and prompted the idea of upgrading a section of Jana Pawła II Avenue. Both the district authorities and the city's residents supported the idea by adopting resolutions or by signing a petition, which was subsequently accepted by the municipal authorities.

2015: The first design concept for the transformation of the street was conceived by the Public Roads Authority (ZDM)¹⁶, headed by deputy director and cycling officer Łukasz Puchalski. The Public Transport Authority (ZTM)¹⁷ collaborated in the design, playing an advisory role.

2016-2018: Stakeholder consultation¹⁸. The decision on the final design and number of lanes was preceded by an analysis to determine whether the change would worsen traffic conditions. In December 2016, the first level crossing was implemented at the intersection of Jerozolimskie Avenue and Emilii Plater Street. Subsequent crossings were not implemented until 2020, along with the road improvement.

2019: The project for the New Centre of Warsaw is launched by the city's president Rafał Trzaskowski. It aims to transform the centre of the capital into an accessible green public space, ensuring the safety of pedestrians and cyclists. The Jana Pawła II Avenue upgrading project is incorporated into the programme.

July-November 2020: Works are carried out on a 750 m section of the Jana Pawła II Avenue, from Rondo ONZ to Nowogrodzka street.



Green Streets participative process in 2018
© Warsaw Greening Authority (ZZW)

¹⁶ Public Roads Authority (Zarząd Dróg Miejskich, ZDM) <https://zdm.waw.pl/>

¹⁷ Zarząd Transportu Miejskiego-ZTM, <https://www.ztm.waw.pl/o-ztm/>

¹⁸ <https://zdm.waw.pl/aktualnosci/jak-sie-zmieni-al-jana-pawla-ii-prezentujemy-projekt/>

3.3. Project Objectives and Design Concept

The main initial objective of the upgrading project was to improve conditions for pedestrians and cyclists by widening pavements, creating cycling lanes and providing level crossings. However, one of the conditions was to ensure the flow of motorised traffic. The road upgrading project proposed by the Public Roads Authority (ZDM) followed four main goals:

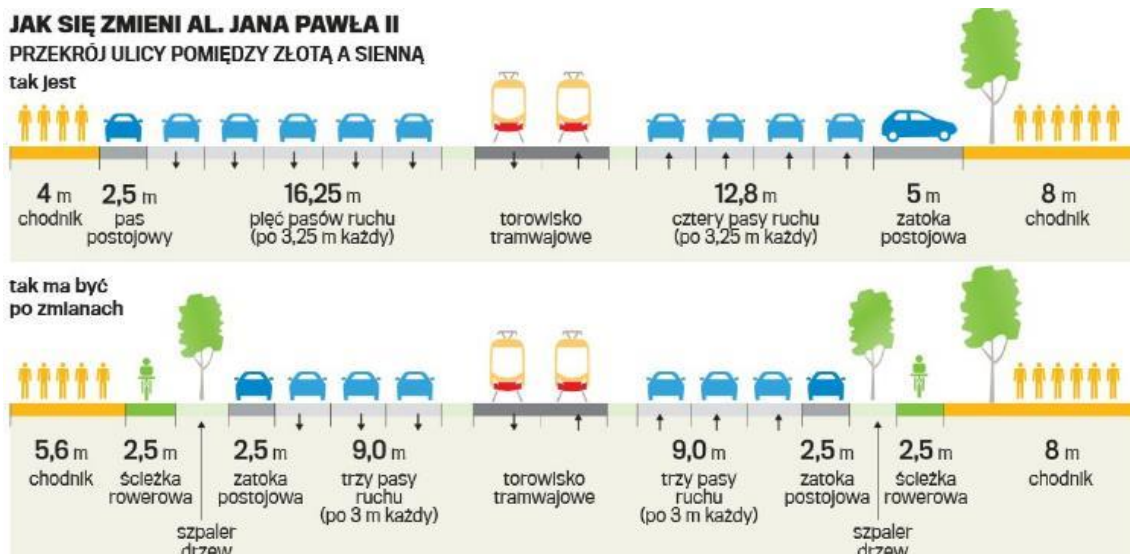
- Improving accessibility by removing barriers and creating new pedestrian crossings,
- Increasing cycle traffic safety by building separate bike lanes,
- Improving the quality of space by renovating pavements and introducing new green areas,
- Organising parking by creating new parking bays.

Adding on to the initial objectives, the *Green Streets* programme developed by the Warsaw Greening Authority (ZZW) defined the project around five main axes:

- Reinforcing and renewing existing street plantings,
- Reinforcing the primacy of pedestrian traffic over cars and bicycles, protecting pedestrians from other modes of transport. Some pedestrian crossings could be transformed into squares that allow connection with the adjacent green areas,
- Introducing functional and spatial diversity in streets, reinforcing the local identity of places and giving them an individual character. For example, by creating active spaces at street intersections or at the entrances of landmark buildings,
- Minimising vegetation maintenance costs by planting low-maintenance species that are resistant to urban climate conditions. And using natural ecological processes in landscaping by selecting appropriate species.

The Jana Pawła II Avenue was recognised as one of the most important traffic arteries of the city, with its metropolitan character emphasized by the high-rise buildings on both sides of the avenue. The existing linden trees plantings are in harmony with its scale. The “Green Streets” project proposed to emphasise this avenue with additional Dutch linden trees (*Tilia Pallida*), a species that is reasonably tolerant to the urban environment. In addition, it was proposed to plant dense stretches of cover shrubs resistant to salinity (*Rosa rugosa*, *Berberis thunbergii*, etc.) to minimize the impact of snow splash, during harsh winter seasons. Additional rows of trees were visualised in the median of the avenue.

In an attempt to reduce car traffic in the city centre, and as a result of the completion of new sections of the Warsaw Metro, the “ZDM” project suggested reducing the number of car lanes from 10 to 6, the lane-widths from 3.3 to 3 m, and replacing them with bikeways and sidewalks along with an additional planted strip. Space devoted to cars would be reduced by 11 m (from 34 m to 23 m).



Preliminary design of a cross-section of Jana Pawła II Avenue, *before* project (above) and *after* (below). Roadway is reduced to 6 lanes and the released space is used for new bikeways, larger sidewalks and greenery. The finally delivered project widened bike lanes from 2.5 m to 3 m resulting in the narrowing of sidewalks from 5.6 m to 3 m on the left (west) side and from 8 m to 4-5 m on the right (east) side. The second row of trees on the right wasn't planted (cf. photo p.29) © City of Warsaw



Before (photo) and after (artist view 2018) of Jana Pawła II Avenue with the planned removal of diagonal parking to create a bike lane
 © Public Roads Authority (ZDM) of Warsaw



Before (photo) and after (artist view in 2018) images of the continuation of Jana Pawła II Avenue on the southern side of Jerozolimskie Avenue (Chałubińskiego Street) along the flyover with the then planned pedestrian- and bike-friendly crossings. The project delivered in 2020 finally did not significantly change the car-oriented geometry of the street entrances.
 © Public Roads Authority (ZDM) of Warsaw

3.4. The Project Delivered in 2020

In 2018 as part of the *Green Streets* programme, the Jana Pawła II Avenue upgrading project aimed at improving the quality of the pedestrian- and bike-friendly experience street with more space for pedestrians and bike and more road crossings. The 4 km long avenue was divided into 10 sections from Jerozolimskie Avenue to the Zgrupowania (Radosław) roundabout. But of the total 4000 m, only a 750 m-stretch of the avenue has yet been upgraded in 2020 by the Public Roads Authority (ZDM).

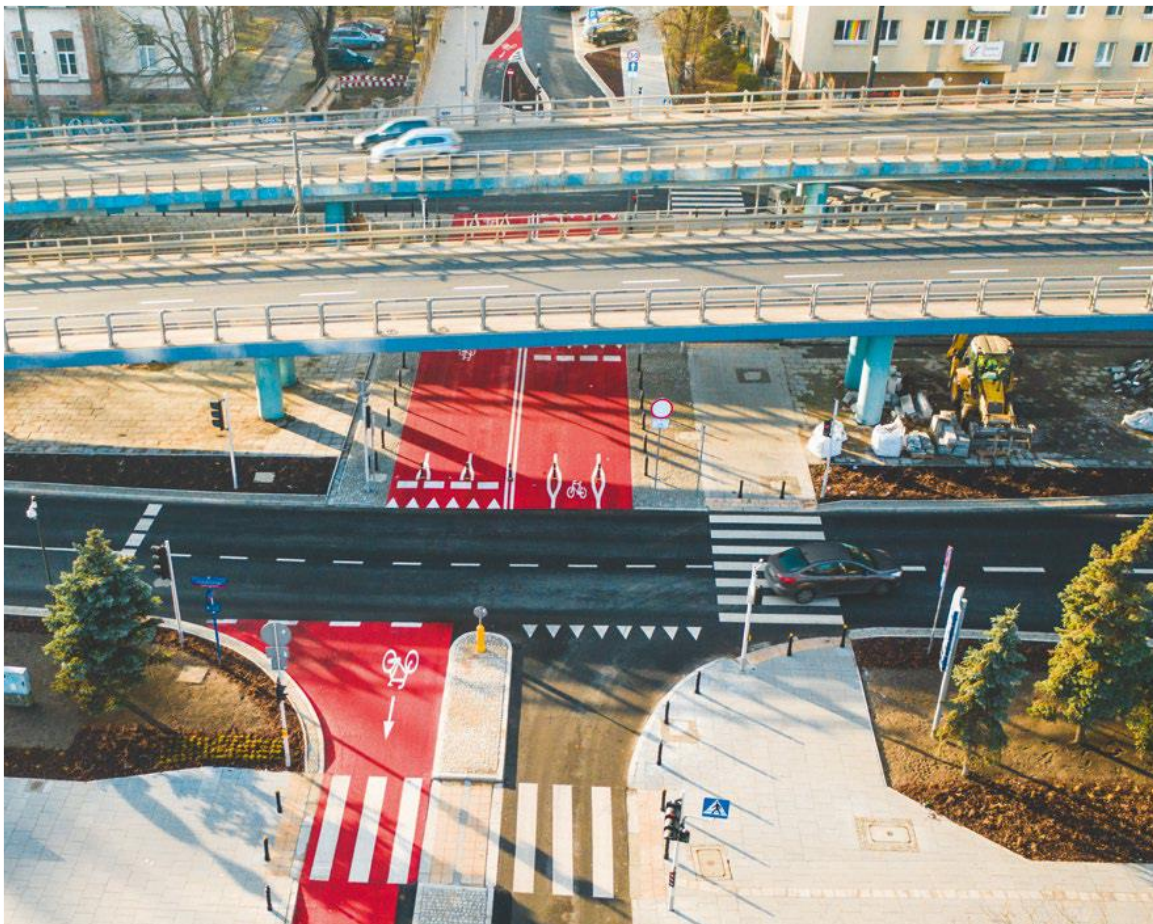
From ONZ roundabout to Nowogrodzka Street, the avenue has been narrowed from 10 (5+5) to 6 lanes (3+3), to reach the same number of lanes as the north and south sections. One or two lanes were removed along the flyover over the Czterdziestolatka roundabout, but the viaduct itself remains.

A separate bike lane has been built on the western side of the road along avenue (photo p. 28). On the eastern side, the cycle path is interrupted 200 m before the central railway station. For the rest of its length towards the south, diagonal parking spaces have been provided.

Bike lanes were added along the avenue, and sidewalks were renewed and widened to three metres, with the removal of architectural barriers such as railings. Street furniture such as benches and litter bins were provided to enhance the pedestrian space.

Three at-grade pedestrian and/or bicycle crossings were implemented:

- One crossing in front of the Central Railway Station north of the Czterdziestolatka roundabout to provide direct access to the tram stops,
- One crossing under the street flyover south of Czterdziestolatka roundabout at Nowogrodzka Street, (photo below),
- One crossing on the western side of the Czterdziestolatka roundabout, providing a continuation of the bicycle path.



The new pedestrian and bicycle crossing under the flyover at Nowogrodzka Street delivered in 2020
© Miroslaw Kaźmierczak / Public Roads Authority (ZDM) of Warsaw

More greenery was visualised around the two roundabouts, but this has not been implemented yet. Some of the tram stops have been slightly shifted to align with the junction and improve connectivity on both sides of the road.

The *Green Streets* programme included two additional rows of trees on both sides of the tramway in the median of the upgraded avenue, but this has not been implemented at this stage. Several dozen parking spaces distributed along the section were removed.

There have also been changes concerning traffic light management, after an analysis of their potential impact on traffic. The newly designed intersections use traffic modelling software.



The new two-way bike lane along the eastern side of the Jana Pawła II Avenue delivered in 2020 (looking north)
© Grand Warszawski / IStockphoto



The new bike lane and plant beds along the flyover today after one traffic lane was removed (western side of the Jana Pawła II Avenue). Some diagonal car-parking bays remain.
© Grand Warszawski / IStockphoto



The project delivered by the Public Roads Authority (ZDM) in 2020 along the Jana Pawła II Avenue.

Compared to the previous situation, two lanes for cars were removed on both sides (see photo p.20) and new bike lanes were introduced. However, the road and the urban environment remain designed for cars driving fast. The flyover over the Czterdziestolatka roundabout remains as it was. The geometry of right-turns is designed to facilitate car movement. The project does not provide any streets crossings between the Czterdziestolatka and ONZ roundabouts. Notice to the left the bike lane brutally stopping 200 m from the Central Station.

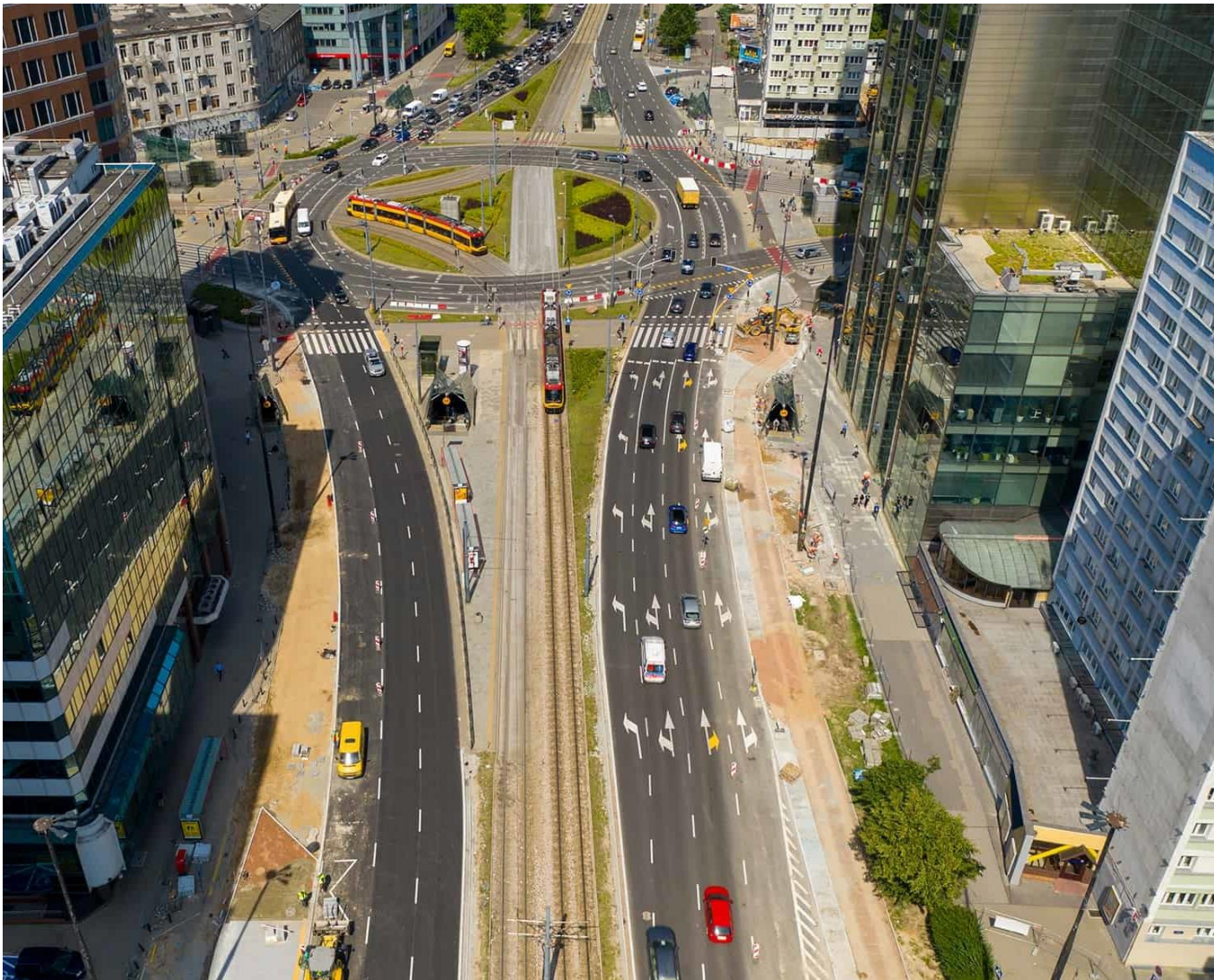
© Mirosław Kaźmierczak / Public Roads Authority (ZDM) of Warsaw

3.5. Project Management and Delivery

The delivery of the Jana Pawła II 750 metre long upgrading project was carried out between July and November 2020, taking advantage of the post-Covid summer period. Since 2016 different detailed designed plans of the project were studied by a private company (the Polish Engineering Co.) for the Public Roads Authority (ZDM) of Warsaw. The final design of the project was finalized in January 2020. Construction works were conducted by a private contractor (Balzola) under the supervision of ZDM for a total cost of PLN 18 million (approximately 4 million Euros). This amounts to an average cost of around 5.3 M€ per kilometre.

The programme for the *New Warsaw City Centre* presented in 2019 is an initiative of the current Warsaw City Executive. The programme is a direct response to the *#Warsaw 2030 Strategy* and is in line with the general guidelines of previous documents such as the *City Transport Strategy* and the *Study of Conditions and Directions of Spatial Development*.

Previously, since 2015, the design concept for the transformation of Jana Pawła II Avenue was being conceived by the Public Roads Authority (ZDM) and considered as a key factor in the project. When the programme for the New Warsaw City Centre was unveiled, the improvement of the road, which was already at an advanced stage of development, was considered a great opportunity to launch the programme and lay the groundwork for the entire initiative to be accelerated.



Transformation works being carried out in the Jana Pawła II Avenue in the summer of 2020
© Public Roads Authority (ZDM) of Warsaw

3.6. Perspectives: A Park on the Flyover?

Initially, the plan in the Warsaw Greenery Authority's concept was to demolish the four-lane viaduct over Czterdziestolatka roundabout. However due to its high cost, the authorities and urban design team suggested to transform the flyover into a double linear urban park separated by the tramway line at ground level (plan below). This park would have had a strong focus on ecological and educational aspects and would have been a flagship project, like the Sky Garden in front of Seoul's Central Station,

The concept evolved around the creation of two entrance squares at both ends of the viaduct, crossing Jana Pawła II Avenue, and several public spaces such as an urban agora, an urban forest and waterfalls. The upper level would be connected with 6 elevators, with 2 of them leading to the tram stop.

Street improvement was already being prepared independently by the Public Transport Authority and the Public Roads Authority. The Public Roads Authority did not wish to change its plans and both authorities were concerned about the impact of closing the flyover to traffic on the congestion of the Czterdziestolatka roundabout.

In the end, the idea of a linear park had no impact on the project implemented in 2020. However, the idea remains and may be brought up again in the future.



Vision for a linear park on the viaduct of Jana Pawła II Avenue, as part of the Green Streets programme
© Greening Authority of Warsaw (ZZW)



The Sky Garden in Seoul (Korea): a former fragilized road viaduct recycled as a green pedestrian Connection to the Central Station
MVRDV © Ossip van Duivenbode



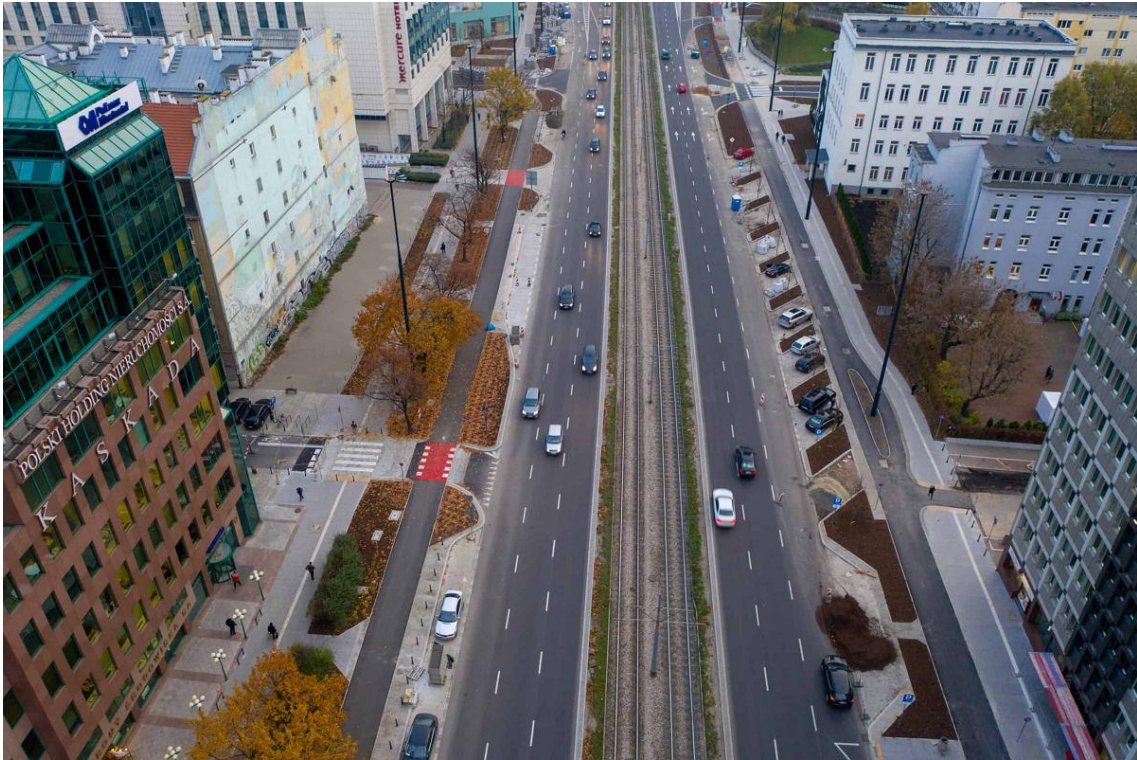
The proposed plan for the transformation of the flyover into a double linear public park with two major crossings of the avenue at both ends and an elevator access from underneath (connected to the Central Station)

© Lead Designers: Mirosław Szuka, Agnieszka Wojciula, Aurelia Juraszyska, Wioletta Rusek, Ewa Wilhelmi, Grzegorz Kopacz



View of the flyover in 2021

© Public Roads Authority (ZDM) of Warsaw



The new Jana Pawła II in 2020 just after delivery with a little more green, wider sidewalks and two comfortable bikeways in both directions. The tramway median remains a barrier and road width could easily have been reduced to 4 lanes (2+2) with the same traffic-flow capacity or even to 2 lanes (1+1) if the goal was to reduce car-use in Warsaw centre.
 © Mirosław Kazmierczak / Public Roads Authority (ZDM) of Warsaw



Jana Pawła II / Chalubniskiego axis in July 2022 after project delivery. The removal or recycling of the flyover into a linear park at Czerdziesiątka roundabout has a potential to yield high benefits in terms of mobility, walkability and quality of environment for all.
 © Public Roads Authority (ZDM) of Warsaw

4. Discussion and take-aways

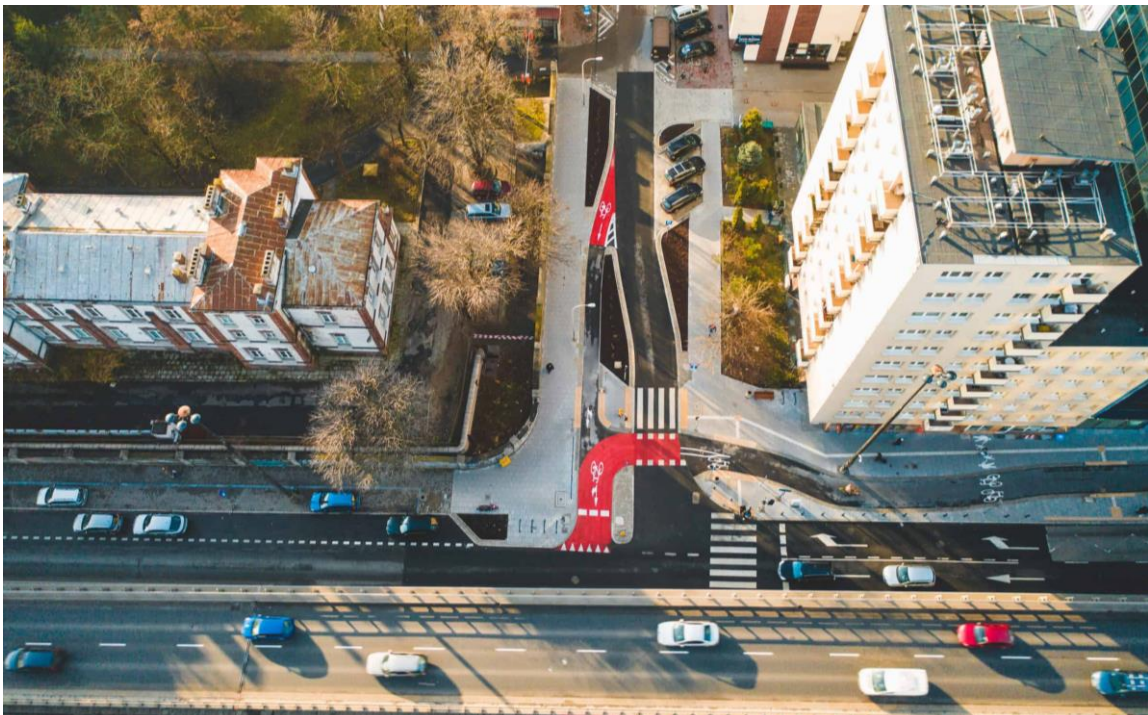
Like many cities in Central and Eastern Europe, Warsaw has gone through a 30-year cycle of economic free-market growth coupled with car-oriented urban expansion. In this context, Warsaw's recent experience in humanizing urban roads designed as highways, greening streets and giving more room for pedestrians and bikes is most interesting for all cities who wish to redesign highways to meet both citizens' aspirations and climate requirements.

In this perspective, the Jana Pawła II Avenue flagship upgrading project realised in the framework of the programme for New Warsaw City Centre is stimulating to observe and can inspire other cities.

A Project Initiated by Local Residents. The Jana Pawła II Avenue upgrading project may not have been realized without the strong will of citizens to create more at-grade pedestrian crossings and to give bike users better cycling conditions. Safety and comfort issues were strongly raised by local residents and NGOs. It took some years of lobbying and protests for changes to occur. The city's president understood public opinion and agreed to the need to transform the highway into a more pedestrian-friendly avenue, with cycling infrastructure and green areas. This accounts for the considerable effort given to public consultation and community workshops for the definition of each street improvement new design resulting in a final overall support of the different projects.

The City's Strategy. The post-war reconstruction of the city of Warsaw has left an interesting heritage: a wide, efficient, regular grid of large tramway-boulevards irrigating the central part of the metropolitan area. These boulevards were initially designed with wide sidewalk pavements and trees, but in the 1990s and 2000s, the needs of car-traffic lead to widen the roadways to 6, 8 or even 10 (5+5) traffic lanes as in the case of the Jana Pawła II Avenue in the Central business district (CBD), between the ONZ roundabout and the Central Station. In the late 1970s, during socialist rule, two highway flyovers for traffic (2+2 lanes) were built in front of the new station, and the station plaza was designed as a parking lot.

Today, the city is aiming for a more balanced approach between motorised and non-motorised modes of transportation. It is engaging in a new city-wide street greening approach framed by the New Warsaw City Centre and the Green Streets programmes, both imbedded in the City Strategy2030.



The western side of the upgraded Chalubińskiego street along the flyover (Jana Pawła II axis). Notice the right angle of the bike lane at Nowogrodzka street as it crosses under the flyover. Bicycle traffic continuing along the axis has to merge with the general traffic. Street layout is partly determined by parking requirements
© Public Roads Authority (ZDM) of Warsaw



Parallel to Jana Pawła II, the 3.6-km long Marszałkowska avenue should also be upgraded as part of the New Warsaw City Centre and Green Streets programmes. In 2022, plans aiming to green the avenue, reduce the roadway from 6 lanes (3+3) to 4 lanes (2+2) and increase pedestrian and bike space were approved by the city council.
 © Public Roads Authority (ZDM) of Warsaw



A vision of the proposed new profile for Marszałkowska avenue for the Public Roads Authority suggests planting four more rows of trees, shrinking the roadway to 4 narrow lanes (2+2 lanes) with longitudinal parking, two 2.5 m wide bike lanes and over 8 m sidewalks. Some of these features may however not be retained in the final project.
 © Architektura Krajobrazu

The ambition of the two programmes is to transform or improve over 30 streets and avenues all over the city within a 4 to 5-year period (2019-2023+), making this -potentially- a quite unique opportunity to change the city. However, if the vision is to make some city streets more pedestrian-, bike- and nature-friendly, it is not to reduce car-traffic.

The consultation process was activated by the Warsaw Greenery Authority (ZZW), but since 2020 the projects are steered and delivered by the Public Roads Authority (ZDM) in charge of all major roads of Warsaw. ZDM has a remarkable technical and financial capacity to deliver large scale roads transformation projects, but part of its mission seems to make sure that the pedestrian and bike improvements do not have a significant negative impact on car-traffic and car-parking conditions. It seems also that the Public Transport Authority (ZTM) is reluctant to create new pedestrian and bike connections across the tramway rail tracks. This may partly explain why the *Green Streets* programme may deliver short of its ambitions.

In the case of the Jana Pawła II Avenue, the upgrading process was already on track in 2018 when the New Warsaw City Centre and the *Green Streets* programmes were launched. As a result, two different processes seem to have run in parallel before converging into the project delivered in 2020. This may have led to some confusion and duplication of procedures. Initially, the research and the public consultation was about the improvement of the whole length of the 4-km Jana Pawła II axis, but the final delivery only concerned the most car-oriented 750 m-long stretch. Some of the most interesting proposals, such as transforming the 4 lane (2+2) flyover into a “high-line style” linear park, were not finally delivered in 2020.

Roadway Shrinking. However, on the 750 m-long stretch, the delivered project reduced the roadway by 2/5th with the removal of 4 lanes of traffic (from 10 lanes to 6 car-lanes) in line with other stretches of the avenue: this is indeed a major step in the process of making the city centre more people-friendly. About 2/3 of the lanes were narrowed from 3.25 m to 3 m, resulting both in an incentive to reduce vehicle speed (pedestrian safety is a major issue in Warsaw) and in a 11-14 m width gain for pedestrian, bikes and green, which is quite remarkable.

The Jana Pawła II reduction in roadway combines with the 3.6-km long Marszałkowska Avenue upgrading project now approved on a parallel roadway: it should shrink from 6 wide lanes (2+3) to 4 lanes narrower (2+2) giving back a significant amount of space to trees, pedestrian and bikes. These two moves may only marginally result in reducing car-flow capacities, as there is a considerable existing roadway north-south over-capacity in the centre of Warsaw.

Indeed, the comparison of daily traffic volumes figures before and after delivery of the new layout seems to show only a small reduction of traffic flows (-3.5% over 5 years including -1,5% from 2018 to 2021) from 69540 vehicles per day in both directions in 2016 to 68060 vehicles/hour in 2018 and 67,060 vehicles/day in 2021¹⁹. However, peak traffic per hour towards the city centre may have been impacted: it was 2,710 vehicles/hour in 2016, 2,600 vehicles/hour in 2018 and only 2,280 vehicles/hour in 2021 (-16% over 5 years, -12% between 2018 and 2021). Further research may show that the four lanes removed between ONZ roundabout and Central Station were not much of use before and that motorists may have changed the time of their travel. A minority of trips may have evaporated.

The overall impact on traffic speed, drivers' behaviour, noise and air pollution will need to be monitored.

Space Reorganisation and Design. The transformation of the 750 m-stretch of Jana Pawła II Avenue has now been completed. Even though the project was conducted on a small stretch of the avenue, its location at the heart of the city and next to the Central Station and commercial district, plays an important role in creating a more attractive space in strategic location.

Besides the widening of pavements and the removal of some diagonal parking, one of the main features of the project is the creation of two major pedestrian crossings at Jerozolimskie and Nowogrodzka streets on Jana Pawła II Avenue, with a third crossing on Jerozolimskie Avenue itself. This improves considerably the connectivity of the Station area and the access to tramway stops.

Another important feature is the building of two new bidirectional bike lanes on both sides of the Jana Pawła II Avenue connecting to some existing lanes. The ideas of two-way bikeways on each side of a

¹⁹ Automatic Traffic Measurement System-APR, Public Roads Authority (ZDM), 2016 and 2021.

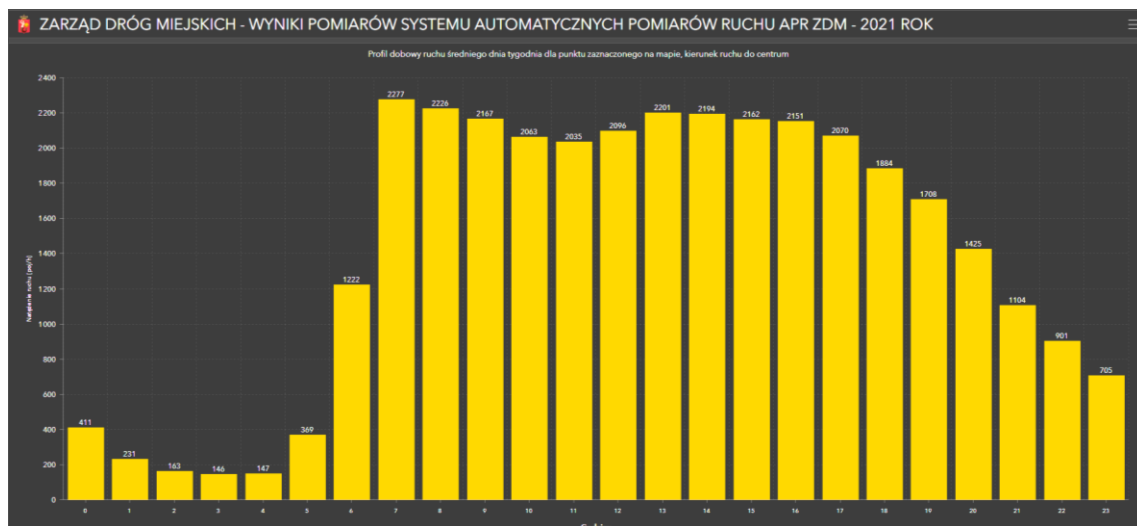
main avenue allows a freedom of movement is really interesting for other large boulevards elsewhere. However, this solution shows how much the Jana Pawła II Avenue remains a barrier to movement.

Design Limitations. Potentially big trees and lower strata planted beds were added along the avenue to help create a green corridor. However, unlike other major avenues such as Paris boulevards or the Wibautstraat in Amsterdam, the monumental linear green structure and “canopy effect” does not appear as having been the priority. The wide geometry of some right-turn traffic lanes, the diagonal parking bays and the bus stops often seem to have prevented from planting. This results in quite patchy planted areas along the avenue.

Despite the vision to create a greener, people-friendly street, the currently delivered project falls short of ambitions: reorganisation of the space continues to favour car use over other modes. It seems the project did not intend to reduce the place of the car but rather increase cycling and pedestrian space. Although some parking spaces were removed, they remain very present along the street. The design of bikeways seems determined by the available space, rather than the cyclists’ comfort.

The avenue still lacks pedestrian crossings between the ONZ and Czterdziestolatka roundabouts which means that pedestrians, bikes and cars may still have to make very long detours before they can reach their destination just on the other side of the road. Some street entrances curbs have a significantly wide radius, which enables cars to turn faster but is a safety issue for pedestrians and bikes.

Urbanism & active ground floors. The project steered by ZDM focuses mostly on the Jana Pawła II Avenue roadway and roadsides. Although it is embedded in city-wide redevelopment strategies, it seems that the urbanistic dimension of the transformation was not part of the process: The relationship between the avenue and the high-rise building developments (such as the *Varso Tower* delivered in 2022) does not seem to be part of the strategy, nor is the creation a vibrant active environment along the avenue by activating ground floors and open space with pocket parks, sport areas, cafés-terraces, shops, etc. The forecourt of the Central Station, currently used as a parking lot, is awaiting transformation. And the entrance of the *Złote Tarasy* retail centre would need to be redesigned.



Daily traffic profile of an average weekday on Jana Pawła II in direction to the city centre in 2021.
 © Public Roads Authority (ZDM) Automatic Traffic Measurement System-APR

A rapid delivery capacity. The city of Warsaw, with the help of the Public Roads Authority (ZDM) in charge of all major roads, has developed a medium-term vision to regenerate over thirty streets across the city: this is an ambitious goal considering the amount of human, technical and financial resource that this requires. Starting with few street and boulevard sections, located in strategic areas with urban development potential, the plan aims at transforming roads into streets or city boulevards. The Jana Pawła II Avenue is just one of the projects, but with a high strategic value as a main axis of the city and a test bed for the New Warsaw City Centre and the Green Streets programmes.

The city of Warsaw has the capacity to decide and deliver projects rapidly: only five years after the first studies were initiated and two years after a public participation process was held in 2018 on a greener project, the final project was delivered by ZDM 2020. This is quite striking considering the time required for this kind of project to be implemented in other cities in Europe. Yet, this may be a drawback when the final solution does not radically change the previous situation. The impact of the project remains to be assessed on mobility (pedestrian and bike movement, public transport use, modal shift), on social and community life, on landscape and urban regeneration, and on other aspects such as the environment.

However, as the images show, the transformation of the Jana Pawła II Avenue is limited. The change harmonised the number of lanes with that of the existing parts of the avenue, but the road still looks very much like an urban highway. It still is a physical barrier between the east and the western parts of the city with fewer crossings than most European city boulevards. Despite the fact that Warsaw has many high-capacity road alternatives to the Jana Pawła II Avenue (see traffic volumes map p.11). In fact, Warsaw seems to have much more traffic crossing the heart of the city and the riverbanks than a lot of cities in Europe.

Transforming urban highways into civic avenues requires time at an early stage to share visions, goals and concepts before rushing to the detailed design. This needs significant preliminary research and consultations. At the end of the design phase, testing solutions on site proved very useful. In this perspective, live experiments such as closing the Station flyover for a Sunday event may bring many societal and technical insights. Testing a temporary central bike lane along the tramway line and then running on top of the flyover could be interesting to observe too.

Testing. Implementing the linear park project on the flyover, well connected to a redesigned Station like the Seoul Sky Garden, would be a major game changer not only for the area, but for Warsaw's international status as an innovative green city. However, this flyover is a major visual and may be seen by some as a 1970s urban mistake. The viaduct may become fragile and unusable for traffic, so it may prove cheaper to remove it, like Seoul did successfully to twelve flyovers in the last decade²⁰, rather than to maintain it.

²⁰ Lecroart (Paul), *Seoul Cheonggyecheon Expressway*, IAU ÎdF, Août 2013.
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APPENDIX

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Reinventing Cities: From Urban Highway to Living Space

Paul Lecroart shows the many benefits of transforming urban highways into people-friendly boulevards



In 1974 Portland replaced its Harbor Drive with a waterfront park; in 1991 the Embarcadero Freeway in San Francisco was dismantled; in 2001 New York rebuilt the 12th Avenue where an elevated highway had stood; in 2005 the Cheonggyecheon Expressway in Seoul made way for the river hidden underneath; and between 2013 and 2017 Paris pedestrianised the Seine riverbank highway. Now Paris Metropolitan Region is launching an international design competition to rethink the *Périphérique* and the *Grand Paris* motorway network.

So will segregated highways become a thing of the past in the post-car and carbon city? Research by the Planning Agency for the Paris Region (IAU) suggests that converting stretches of highways into multi-use boulevards and public spaces may open up new avenues for rethinking our cities in terms of liveability, mobility and resilience.

HIGHWAY-TO-BOULEVARD CASE STUDIES

Functionalist thinking and post-war planning have left many large cities, including London and Paris, with extensive, yet unfinished networks of urban highways. As they were built they were used, and still have a role in moving people and goods

within metropolitan areas. However, these limited-access grade-separated roads create physical barriers, tend to devitalise centres, neighbourhoods and waterfronts, and hinder regeneration. The high levels of traffic they support generate noise, dust and air pollution, raising health and social justice issues. By providing seemingly easy access for cars, extensive highways networks tend to encourage car-centric lifestyles, urban sprawl, and more traffic congestion.

In the last decades, many cities have successfully started tearing down obsolete urban highways and replacing them with multi-use boulevards lined with mixed use new development, or new linear parks. Why are they doing that? What happens with the traffic? What are the benefits and costs? Are these projects backed by public support?

1 Seoul: the Cheonggyecheon River, formerly a highway carrying 168,000 cars a day; removal of the viaduct and restoration of the river significantly reduced traffic. Image by Paul Lecroart iAU

To find answers to these questions and others, I have looked into over 20 highway-to-boulevard experiences either fully completed or planned in cities worldwide. Of these, nine cases were studied in depth on-site with reports published (in French): Seoul (Cheonggyecheon Expressway), Portland (Harbor Drive), San Francisco (Embarcadero, Octavia), New York (West Side, Sheridan), Milwaukee (Park East), Montreal (Bonaventure), and Vancouver (Northern False Creek Viaducts).

Most of these cases involve fairly central stretches of highways supporting heavy traffic volumes (in the range of 50,000 to 150,000+ vehicles per day), before being replaced by a boulevard and/or a linear park. This research is reference material to inform highway transformation strategies and projects in the Paris Region.

WHY DO CITIES GET RID OF URBAN HIGHWAYS?

Depending on the physical context and circumstances, city authorities decide to remove highway stretches for quite a pragmatic combination of reasons, including:

- **Aging infrastructure and rebuilding costs.** In San Francisco, Seoul, New York (West Side), or Toronto (East Gardiner), it appeared cheaper to dismantle crumbling elevated highways than to rebuild or bury them. Recycling viaducts into pedestrian connections can also give a new life to obsolete infrastructure cheaply, as in Seoul (Seoullo 7017) and Paris (La Défense Boulevard).
- **Revitalising blighted areas and unlocking redevelopment opportunities.** This is a main driver for change in Vancouver, Milwaukee, Montreal, Birmingham (Inner Ring Road), Lyons (A43 Mermoz), and Oakland (I-980).
- **Reclaiming the waterfront.** Transport engineers enjoyed building highways along river or seafronts, but these created barriers and therefore suppressed real estate values. Reconnecting cities with their historic setting and ‘giving the waterfront back to the people’, residents and visitors alike, often means converting the highways, such as in Portland, Seoul, New York and Paris.
- **Reducing through traffic and related nuisances.** This is central to the strategy supporting the Seoul, Paris, Lyons (A6/A7 Confluence), and Strasbourg (A35) reconstructions.

These context-specific goals are usually part of wider urban intensification policies, eco-friendly transport plans and economic strategies. However, many highway removal projects were accidental: both the Embarcadero and Central Freeway viaducts in San Francisco were closed after being damaged by the Loma Prieta earthquake in 1989, and New York’s West Side elevated highway collapsed when a maintenance truck went through the viaduct in 1973!

DOES HIGHWAY TRANSFORMATION REALLY HELP REGENERATE CITIES?

Evidence from research shows that redesigning highway corridors can be a powerful driver for regenerating blighted or abandoned parts of cities, with a lasting positive impact on the city as a whole. Removing visual barriers, reconnecting streets, and improving the quality of the environment has changed the face of Portland, San Francisco, Seoul, Milwaukee and Birmingham. Replacing interchanges and ramps by straightforward crossroads unlocks vast pieces of land that can be reconverted into denser mixed use districts and parks.

WHERE DO THE CARS GO?

To many traffic engineers’ surprise, closing highways does not usually create traffic chaos beyond initial adjustments. Where spare road capacity did exist in some of the cases studied (Seoul, San Francisco, New York), car traffic switched to local street networks. Traffic thus gets distributed more evenly on a larger number of streets. Congestion remained limited and less than forecast.



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Average daily traffic in the road corridor may decrease dramatically after removal – from 20 per cent in Portland to up to 82 per cent in Seoul. When accounting for trips diverted to alternative roads or to public transport, a significant share of earlier traffic appears to have simply evaporated, typically in the range of 10-25 per cent in the cases studied. Faced with a reduction of road capacity and speed, a proportion of motorists change their routes, time of travel, trip frequency or activity programme, while others switch to alternative modes. Changing conditions makes car drivers think twice, leading some to change destination or give up less essential trips.

INCREASED CONNECTIVITY FOR EVERYONE

Some cities back up removal projects with specific alternative transport and travel management strategies. While reducing road supply on the Cheonggyecheon corridor, Seoul increased metro and express bus services, and discouraged solo car use through infrastructure tolls and parking policy. Local accessibility often improves with the removal of detours. A decrease of vehicular trips may mean increased accessibility for people as a whole.

Pedestrian and cycle mobility and static uses of public space for enjoyment increase sharply. However, more people on streets with still heavy car-traffic

2 San Francisco: Embarcadero Freeway in the 1960s, photo Tim Pharoah
 3 The same area after the removal of the Freeway gave back the Bayfront to the people. Image by Paul Lecroart IAU

26 TOPIC



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levels (80,000 vehicles a day on New York's 12th Avenue today) may result in more car-pedestrian or car-cyclist collisions: the careful design of multi-lane boulevards is critical to their overall success. Ultimately, what we may see is a shift from a system providing off-peak fast travel for some (the motorists) to a 24/7 system of slower accessibility for all.

ENVIRONMENTAL EFFECTS

A reduction in the volume of motorised traffic and distances travelled tends to reduce fuel consumption, as well as CO₂ and fine particle emissions. Perceptions of noise levels decrease, even when actual levels remain high. Some highway-to-boulevard projects providing more greening may have a positive impact on the local climate: in Seoul, summer temperatures along the former highway corridor are now a welcome 5°C lower than on other arterial roads.

A FAVOURABLE COST-BENEFIT RATIO?

Transforming highways has a cost: in the cases studied, capital investment was in the range of €35-70 million (about £30-60 million) per kilometre. In view of the costs of maintaining or rebuilding infrastructure nearing the end of its life, transformation often proves cheaper. It may be a more affordable and longer-term solution than capping or tunnelling. Land freed for redevelopment can contribute to meet the costs.

COMPLEX PROCESSES, PUBLIC SUPPORT?

Redesigning a highway into a boulevard is always a lengthy, complex, and uncertain process in which open technical expertise,

citizen participation, and political will play key roles. Convincing car-users and business interests requires lots of data, meetings and leadership. While controversial to begin with, these projects often win over the public during the process... or not, as in the case of Seattle (Alaskan Way). Just as in the 1970s, extensive highway plans were defeated by public opinion in San Francisco, London and other cities, many smart grass-roots coalitions are pressing governments today to remove existing highways and flyovers in cities including Paris, New York, Denver, Dallas and Sao Paulo.

SYMBOLIC ACTIONS OR PARADIGM SHIFTS?

Highway transformation projects have a strong symbolic impact because they affect objects traditionally connected with the idea of freedom and modernity. They bring us back to some of the fundamentals of city development, such as nature, heritage, parcels and streets, and into a more holistic way of thinking.

LEARNING FROM INTERNATIONAL EXPERIENCE

From an urban planner and designer's perspective, the main lessons can be summarised in four points:

- Transforming urban highways into boulevards encourages people to change their travel patterns: less essential car trips tend to disappear and eco-friendly transport modes tend to increase. This can free-up road capacity for other needs, such as higher added value car trips or goods distribution. Improving local accessibility is not detrimental to longer-distance metropolitan or regional trips.
- An integrated boulevard offers a comprehensive metropolitan level of services connecting people and activities, moving as many people, if not more, than a highway, but at a slower, smoother speed. Boulevards enable social and cultural interactions to take place, ultimately the

4 New York: plan for the Sheridan Expressway in the South Bronx. Highway-to-boulevard projects can help deprived neighbourhoods while maintaining road capacity. Image by New York City Department of City Planning-ARR
5 New York: the boulevard replacing the Westside Freeway (2001): spectacular growth in bike and pedestrian traffic. Image by Paul Lecroart IAU



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raison d'être of cities and a key to their economic performance.

- Replacing a highway with a well-connected high-quality multi-use boulevard creates value and can unlock the mixed use regeneration of deprived urban spaces and improve the liveability of the city as a whole.

- As a tool in the sustainable planner's kit, highway conversion can be used pragmatically, for instance to leverage the revitalisation of a specific area. Successful tactical action on a short stretch where the highway is easy and cheap to change rapidly will help garner support for the transformation of longer stretches in the future. This is the strategy chosen by New York City for the Sheridan Expressway (by the Bronx River). In the United States, the country of the automobile *par excellence*, the success of removal projects stimulates many other cities to redesign obsolete highways. Seoul has removed 16 flyovers since 2005.

International successes in highway-to-boulevard transformation offer food for a wider rethinking of the functions, uses and status of urban highways in city regions. Profound changes are affecting the behaviour patterns of people and businesses, and the way that cities and regions are organised. Many developed cities worldwide, including Paris, New York, Los Angeles, Tokyo, London and Stockholm, have experienced an overall reduction in car use, traffic levels, and car ownership over the last decade.

Redesigning the existing urban highway network of large cities may be a smart way to address citizens' aspirations and metropolitan development challenges, including global warming related issues. It is not just about design: it is about rethinking the planning, movement, lifestyles, and wealth creation of cities and regions. This is a major trans-disciplinary task for the coming decades. ●

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Highway transformation projects have a strong symbolic impact because they affect objects traditionally connected with the idea of freedom and modernity.



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6-7 Montreal: the Buonaventure Highway, before and after the viaduct was demolished with a positive impact on the environment.

8 Paris: former Left Bank Expressway, now a pedestrian and cyclist promenade. Image by Paul Lecroart, IAU



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