

Case studies







Case studies

Projects and processes

June 2022

Brief

The aim of this report is to gather mobility infrastructure integration projects and their processes, to learn from their successes and shortcomings. To do so, the report classifies the infrastructures and the integration actions, and gathers 30 cases of executed or in progress projects. In those, the preexisting needs, the undertaken actions and the resulting outcomes are explained, highlighting lessons learnt that can be applicable to future projects.

Therefore, this set of cases wants to serve as inspiration to policymakers and designers working on mobility, public space and planning issues, and show that a better relationship between mobility infrastructure and its surround-ings is possible.





RETHINKING INFRASTRUCTURE

On the network

RiConnect is a network of eight metropolises whose purpose is to rethink, transform and integrate mobility infrastructures in order to reconnect people, neighbourhoods, cities and natural spaces.

We will develop planning strategies, processes, instruments and partnerships to foster public transport and active mobility, reduce externalities and social segregation and unlock opportunities for urban regeneration.

Our long-term vision is a more sustainable, equitable and attractive metropolis for everyone. It is an URBACT project and is co-financed by the European Regional Development Fund.

Index

Preface by Brian Rosa	4
Case Studies for Infrastructural Reconnection: From "Win-Win" Scenarios Toward the "Right to Stay Put"	
Types of infrastructure	6
Types of action	8
Case study classification	14
Case study matrix	16
Case study map	18
Case studies	20

Nodal infrastructure cases	20
PT_Porto_Campanhã intermodal terminal	20
CH_Genève_Passerelle de la Paix	22
PL_Solec Kujawski_Transport Hub	24
CA_Montreal_Transit-oriented development model	26
NL_Amsterdam_Orlyplein redevelopment	28
CH_Zurich_Kalkbreite	30
ES_Madrid_Mobility initiative incubator	32
Linear infrastructure cases	34
BE_Brugge_A11 Motorway	34
FR_Paris_Porte des Lilas	36
GR_Thessaloniki_New waterfront	38
UK_Manchester_Hatch! Retail below ring road	40
Fl_Helsinki_Baana	42
ES_Barcelona_BCN-Esplugues cycle path	44
CA_Montreal_A-10 Bonaventure deconstruction	46
FR_Lyon_ M6/M7 highway corridor	48
NL_Maastricht_A2 redevelopment	50
ES_Barcelona_Plaça Europa and Gran Via L'H	52
SK_Daejeon-Sejong_ Solar bike highway	54
NL_Utrecht_The Singel Canal	56
NL_Amsterdam_Plantage Middenlaan	58
US_Los Angeles_River communities	60
BE_Brussels_Delta Herrmann-Debroux	62

Enclosed infrastructure cases 64

CA_Montréal_Outremont	64
UK_Manchester_Northmoor Homezone	66
DE_Hamburg_Stadteingang Elbbrücken	68
PL_Krakow_ Pocket Parks - Ogrody Krakowian	70
DE_Berlin_Park am Gleisdreieck	72
US_NYC_East NY Neighbourhood plan and Ave.	74
PL_GGS_ SKM - Train service investment plan	76
PL_Gdansk & Partners_Cycling May	78

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Preface

Case Studies for Infrastructural Reconnection:



by Brian Rosa, Ad-hoc expert of the URBACT RiConnect APN

Brian Rosa is urban geographer and photographer, and Marie Skłodowska-Curie Research Fellow at the Department of Humanities, Universitat Pompeu Fabra. He is an Ad-hoc expert at RiConnect, where he supports the research of case studies and the social impact of infrastructure projects. From "Win-Win" Scenarios Toward the "Right to Stay Put"

RiConnect's model emphasizes spatial analysis, creates useful typologies, generates new vocabularies, and assembles a toolkit for metropolitan public bodies

When we change the infrastructure of metropolitan areas, we change the fundamental character of social and ecological relations as well. RiConnect responds to one of the key challenges of contemporary urbanization: how to reduce automobile dominance underwritten by expansion-oriented mobility planning, which has tended to create barriers, isolate urban peripheries, and sustain social marginality, while sacrificing urban edges to purely operational logics. RiConnect brings together metropolitan planning bodies from around Europe to address shared challenges by reimagining large-scale transportation infrastructures and planning interventions to promote active mobility, improve accessibility, create new spaces for recreation and social exchange, decrease atmospheric contamination, and knit together urban districts severed by infrastructural networks. Rather than continuing the model of 20th century modernization projects favoring the automobile at all costs, RiConnect analyses infrastructural barriers and how they may be overcome proactively, provides assessment tools and frameworks to help metropolitan planning bodies assess their own unique characteristics, conceives new ways to promote active, safe, and accessible mobilities, and promotes the recuperation of residual spaces for public benefit through repair, reconfiguration, and adaptation. Instead of endlessly outlaying large-scale infrastructural networks, RiConnect implores us to reimagine the mobility infrastructures that already exist. This approach has undeniable environmental and social benefits, presenting the possibility of improving the everyday lives of a broad cross-section of society in a variety of geographical contexts.

RiConnect envisions a more sustainable, equitable, and attractive metropolis for all. This is no easy challenge. Realizing this vision requires a comprehensive analysis of the social risks that regularly arise from regeneration and reconnection projects. Understanding these risks, especially displacement and exclusion, requires sensitivity to different geographical scales (from the immediate to the local, regional, and beyond) and to different levels of social vulnerability at the individual and community levels. In this sense, we must be careful not to take a purely utilitarian approach, avoiding the presumption that environmental and infrastructural improvements provide equal benefits for all. Depending on the political and economic circumstances and governance structures, the broader social impacts of reconnection projects differ significantly, and we cannot simply assume "win-win" scenarios. Planners and designers cannot be expected to solve issues of spatial inequality on their own, but neither can we expect that the results of our practices are someone else's problem. Ensuring the most equitable distribution of the opportunities and benefits that mobility improvements provide requires technical knowledge, but also necessitates proactive collaboration with community organizations and policymakers.

The act of reconnecting implies the acknowledgement of historic disconnections. Therefore, RiConnect aims to enact transformative change, placing emphasis on counteracting historical inequalities and immobilities embedded in European metropolitan areas and working with disadvantaged groups (whether by socioeconomic status, gender, race/ethnicity, disability, migration status, religion, etc.) having experienced the greatest negative impacts of the mobility infrastructures that sustain our metropolitan areas, often appreciating fewer of their benefits.

RiConnect's model emphasizes spatial analysis, creates useful typologies, generates new vocabularies, and assembles a toolkit for metropolitan public bodies. It presents clear opportunities to improve mobility options while creating new spaces for sociality and interchange. This is outlined in the Public Report, which provides a framework to help metropolitan planning entities identify which mobility infrastructures should be the focus of intervention, analyze pre-existing metropolitan models, and identify future needs. The report classifies different types of infrastructures and their impacts to help understand local specificities and design the most suitable actions. Of course, there is no one-size-fits-all model for metropolitan areas, which have different forms, development patterns, rates of growth, and governance structures. Nevertheless, the Public Report provides a series of generalized questions and pointers with wide applicability.

The companion document to the Public Report is the Case Study Report, where RiConnect team members have identified reconnection projects from around the world that they find exemplary, while showcasing the strongest examples in their own conurbations. The report provides ideas and inspiration. It expands upon terminologies and typologies developed in the Public Report to helping readers visualize different approaches, applied to a wide variety of geographical contexts. It should be noted that, despite their clear benefits, many cases do not demonstrate robust assessments of social impacts. This leaves room for improvement in conceiving and implementing reconnection projects at the policy and planning levels, including proactive anti-displacement strategies, mechanisms ensuring that planning gains are reinvested for the benefit of affected communities, and that private interests are not receiving disproportionate advantages. In other words, when we remove barriers and create new opportunities that stimulate redevelopment, how does this revalorization impact pre-existing communities, and who are new developments being built for?

Herein lies the key social challenge: ensuring that 21st century infrastructural reconnections prioritize residents and workers in districts historically dominated by, or poorly served by, large-scale infrastructures. In essence, these areas may be too close, too far away from, or cut off by urban infrastructure networks. In the 20th century throughout the Global North, motorways were often placed in districts whose residents had less economic and political power, or used as tools of "slum clearance" and social segregation, while contaminating land uses have typically been located alongside infrastructural corridors. Above-ground infrastructures have served as physical and perceptual barriers between places. The perceived undesirability related to proximity to mobility infrastructures often suppresses land values, keeping such districts relatively affordable. In cities with strong redevelopment pressure, reconnecting divided districts, creating active mobility infrastructures, or creating new public spaces increases land value, creating gentrification threats. These threats are especially acute for tenants. With this in mind, RiConnect has developed a framework for assessing and addressing social displacement risks, prioritizing pre-existing residents-and whenever possible, neighborhood-serving commercial activities-so that they can enjoy their improved surroundings. Steps towards more connected and accessible urban infrastructures must be conceived from the start of projects to ensure that they provide the broadest benefit to all inhabitants, particularly the most vulnerable, who should actively take part in shaping, and benefitting from, improvements to mobility infrastructures and public spaces, exercising what planning scholar Chester Hartman has called the "right to stay put".

I applaud RiConnect for focusing its URBACT action on producing a framework for assessing, and acting upon, European conurbations' mobility and public space needs, offering useful pointers about setting up appropriate governance structures, ensuring public engagement and co-creation, drafting plans and small-scale pilot programs, securing funding, and building a learning network. As I have emphasized, changes in mobility infrastructures have spill-over effects, especially on neighboring communities, whose proximity to largescale infrastructures has often put them at a disadvantage. If we can combine sensitive mobility planning with policy mechanisms that prevent displacement, European conurbations can ensure that reconnection projects provide the greatest positive social impact, while improving economic, social, environmental, and health conditions for all.

"When we remove barriers and create new opportunities that stimulate redevelopment, how does this revalorization impact pre-existing communities, and who are new developments being built for?"

Project classification

The classification of infrastructure integration projects is done following two criteria: the type of infrastructure regarding its physical setting, and the type of action. TYPES OF INFRASTRUCTURE

- Nodal
- Linear
- Enclosed

TYPES OF ACTION

- Integrating the infrastructure
- Reorganising how we move
- Planning the metropolis
- Adding ecosystem functions
- Improving the social realm

Types of infrastructure



NODAL INFRASTRUCTURE

- Multimodal interchanges
- Train stations
- Bus stations

LINEAR INFRASTRUCTURE

- Roads and highways
- Railways
- Canals, rivers and industrial waterways

- Infrastructure sites: Military camps, parks, train depots, airfields...
- Civic infrastructure: parks, cemeteries, sports fields
- Local street networks

Worst-case scenario

The infrastructure creates big externalities while not giving a complete service to the local community.



What does it mean in...

NODAL INFRASTRUCTURE

- Infrastructure unrelated to its surroundings, with limited access and crossings
- Node serving only one side of the surrounding community
- Leftover spaces
- Monofunctional infrastructure, with inadequate relations between mobility modes

LINEAR INFRASTRUCTURE

- Infrastructure without pedestrian crossings
- Limited access to local areas
- Leftover spaces
- No dialogue between mobility modes
- Visual nuisances
- Pollution: emissions, noise, light, vibrations...

- No accessibility to tge area
- No relationship with surrounding areas







Reorganising how we move



Planning the metropolis





Improving the social realm

Integrating the infrastructure

The relationship of infrastructure and territory is rethought, to increase permeability for active mobility.

EVALUATION CRITERIA

- Recuperation of leftover spaces to serve local needs
- Elimination or reduction of barriers
- Improvement of public space and rights of way for pedestrians, cyclists and disabled people



What does it mean in...

NODAL INFRASTRUCTURE

- Pedestrian crossings to serve all surroundings
- Fencing or vegetation to reduce visual and noise impact
- Reuse of leftover spaces to serve local needs

LINEAR INFRASTRUCTURE

- Pedestrian crossings over/under the infrastructure
- Fencing or vegetation to reduce visual and noise impact

- Partial opening of area
- Conditioning of crossing paths
- Fencing of preexisting activities

Reorganising how we move

The space of the infrastructure is rethought, adding new functions and allowing a greater mixture.

EVALUATION CRITERIA

- Increase of space for active mobility
- Increase of space for public transit
- More connections between mobility modes



What does it mean in...

NODAL INFRASTRUCTURE

- Intermodality between mobility modes
- Accessibility and parking for active mobility modes

LINEAR INFRASTRUCTURE

- Add or strengthen new functions
- Specific space for public transit
- More access points to local communities
- Space for active mobility modes and improvement of crossings

- Creation of new crossing paths
- Integration of punctual civic activities to guarantee safety

Planning the metropolis

The infrastructure generates new development around it, creating human-scale spaces.

EVALUATION CRITERIA

- Increase in density
- Higher variety of uses and active frontages
- Conservation of preexisting uses and population



What does it mean in...

NODAL INFRASTRUCTURE

- Densification of station surroundings
- Reuse of preexisting buildings

LINEAR INFRASTRUCTURE

- New development in both sides of infrastructure
- Human-scale infrastructure, easy to cross at ground level

- Elimination of surrounding limits • Reuse of existing buildings for
- new uses

Adding ecosystem functions

The space of the infrastructure is rethought, adding new functions and allowing a greater mixture.

EVALUATION CRITERIA

- Improved water management
- Creation or connection of ecosystems
- Improved climate comfort



What does it mean in...

NODAL INFRASTRUCTURE

- Addition of green featuresEnergy generation
- LINEAR INFRASTRUCTURE
- Pervious areas and sustainable drainage
- Continuity of natural flows

- Continuity of green areas
- Water management

Fostering social inclusion

Opportunities for social integration are supported, while mitigating possible threats.

EVALUATION CRITERIA

- Building a community feeling
- Ensuring the permanence of residents/business
- Fostering change in people's mindsets/habits



What does it mean in...

NODAL INFRASTRUCTURE

- Gathering places
- Fostering local retail
- Developing affordable housing

LINEAR INFRASTRUCTURE

- Fostering local retail
- Developing affordable housing

- Offering neighbourhood spaces
- Enacting anti-displacement policy in surroundings

Casa st	Nodal									
classis	fication	PT_Porto_Campanhã intermodal terminal	 CH_Genève_Passerelle de la Paix	PL_Solec Kujawski_Transport Hub	 CA_Montreal_Transit-oriented development model	 NL_Amsterdam_Orlyplein redevelopment	CH_Zurich_Kalkbreite	ES_Madrid_Mobility initiative incubator		
Integrating the	Decrease of residual spaces	0	0		0	0		0		
infrastructure	Elimination of barriers			0	0		0	0		
	Improvement of public space		0		0			0		
Reorganising how we move	More space for active mobility		0	0	0		0	•		
	More space for public transit		0					•		
	More connections between modes		0				0	•		
Planning the metropolis	Increase in density	0	0	0		0		0		
	Change of uses	0	Ο	0		Ο				
	More active frontages and mixed uses	0	0	0						
Adding	Improved water management	0	0	0	0		0	0		
ecosystem functions	Creation/connection of ecosystems		0	0	0		0	0		
	Improved climate comfort	0	0	0	0	0	Ο	0		
Fostering	Building a community feeling	0			0	0				
social inclusion	Ensuring permanence of residents/business	0	0	0		0	0			
	Fostering change in people's mindsets/habits			0	0					
Main action		Reorganising	Integrating	Reorganising	Planning	Adding	Fostering	Fostering		

BE_Brugge_A11 Motorway	FR_Paris_Porte des Lilas	 GR_Thessaloniki_New waterfront	UK_Manchester_Hatch! Retail below ring road	Fl_Helsinki_Baana	ES_Barcelona_BCN-Esplugues cycle path	 CA_Montreal_A-10 Bonaventure deconstruction	FRLyon M6/M7 highway corridor	 NL_Maastricht_A2 redevelopment	ES_Barcelona_Plaça Europa and Gran Via L'H	SK_Daejeon-Sejong_ Solar bike highway	NL_Utrecht_The Singel Canal	NL_Amsterdam_Plantage Middenlaan	US_Los Angeles_River communities	BE_Brussels_Delta Herrmann-Debroux		CA_Montréal_Outremont	UK_Manchester_Northmoor Homezone	DE_Hamburg_Stadteingang Elbbrücken	PL_Krakow_ Pocket Parks - Ogrody Krakowian	DE_Berlin_Park am Gleisdreieck	US_NYC_East NY Neighbourhood plan and Ave.	PL_GGS_ SKM - Train service investment plan	PL_Gdansk & Partners_Cycling May
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Adding	Planning	Integrating	Integrating	Reorganising	Reorganising	Planning	Planning	Planning	Planning	Adding	Adding	Adding	Fostering	Integrating		Integrating	Reorganising	Planning	Adding	Adding	Fostering	Reorganising	Fostering

Case study matrix

	Nodal infrastructure
Integrating the infrastructure	CH_Genève_Passerelle de la Paix
Reorganising how we move	PL_Solec Kujawski_Transport Hub PT_Porto_Campanhã intermodal terminal
Planning the metropolis	CA_Montreal_Transit-oriented development model
Adding ecosystem functions	NL_Amsterdam_Orlyplein redevelopment
Fostering social inclusion	CH_Zurich_Kalkbreite ES_Madrid_Mobility initiative incubator

Linear infrastructure	Enclosed infrastructure
GR_Thessaloniki_New waterfront UK_Manchester_Hatch! Retail below ring road BE_Brussels_Delta Herrmann-Debroux	CA_Montréal_Outremont
FI_Helsinki_Baana ES_Barcelona_BCN-Esplugues cylce path	UK_Manchester_Northmoor Homezone PL_GGS_ SKM - Train service investment plan
CA_Montreal_A-10 Bonaventure deconstruction FR_Lyon_ M6/M7 highway corridor NL_Maastricht_A2 redevelopment ES_Barcelona_Plaça Europa and Gran Via L'H FR_Paris_Porte des Lilas	DE_Hamburg_Stadteingang Elbbrücken
NL_Utrecht_The Singel Canal NL_Amsterdam_Plantage Middenlaan SK_Daejeon-Sejong_ Solar bike highway BE_Brugge_A11 Motorway	DE_Berlin_Park am Gleisdreieck PL_Krakow_ Pocket Parks - Ogrody Krakowian
 US_Los Angeles_River communities	US_NYC_East NY Neighbourhood plan and Ave. PL_Gdansk & Partners_Cycling May





Reorganising how we move

Scope: Intermodal station Status: In progress Project size: 57,500 m2 Exp. year of completion: 2022

Key actors: Porto Municipality Brandao Costa Architects



^ 1. Location of the project in Porto.

> 2. Resulting layout of the public realm.

Needs

Background

Campanhã is Porto s main train station, offering a high-speed service to Lisbon, an international service to northern Spain and several metro and commuter train lines.

However, Campanhã has not been as relevant as it could be for a number of reasons. For one thing, its location within the limits of the city centre creates a barrier of undeveloped land and highways. Furthermore, it does not offer an intermodal service, given the absence of an intercity bus station.

Challenge

The project is set to connect the two sides of the track. In the current situation, the train station is located on the inner city side, and the outer city side is only accessible through a narrow pedestrian underpass, which offers access to a low-density neighbourhood, a school and a few industries.

In addition to the crossing, the project must transform Campanhã into an intermodal station where long-distance buses can also stop. This will solve the issue of the dispersion of stations around Porto, offering all services in a single node.

Porto, Portugal CAMPANHÃ INTERMODAL TERMINAL

The main train station in Porto becomes fully intermodal, creating a huge green space and connecting the two sides of the train tracks at the same time

Design

The new bus station is located on the opposite side of the existing train station, on the outer side of the city. Above ground, it is conceived as a long walkway leading to the existing underpass, with large green areas – an urban natural park – on both sides of the walkway, and a recreational space providing decompression sites within the urban mesh.

The bus station is built underground, with eight platforms and thirty bus parking places. Apart from the existing connection, a new underpass will also provide a direct connection between the bus station and the train station platforms.

Strengths and weaknesses

+ Strategic location to resolve connection issues while avoiding city centre traffic.

+ Sober and clear project design. -The proposal does not create a lively urban realm that can foster further development.

- The proposal does not create a lively, urban realm likely to foster further development.

- A large amount of public space in an area with scarce activity may result in unsafe spaces.



Outcomes

Expected impact

- Improved intermodality between mobility modes, which may induce greater demand.
- Improved accessibility to neighbourhoods on the other side of the tracks.
- Set to open in 2022, offering more services than other stations.

Lessons learnt

• Instead of consuming open spaces, new infrastructure can create high-quality green areas.





^ 3-4. Renderings of the new bus station.

> 5. Overall plan of the station, with generous green areas on the roof.

Sources: GO Porto

Image credit: 1. Stamen + AMB 2. GO Porto 3.,4.,5. Brandao Costa Architects

Integrating the infrastructure

Scope: Railway overpass Status: Built Project size: 160 m in length Year of completion: 2014

Key actors: City of Geneva Pierre-Alain Dupraz, Architect DIC SA, Engineers



^ 1. Location of the project in the city of Geneva.

> 2. Aerial view of the overpass connecting to the existing train station.

Genève, Switzerland PASSERELLE DE LA PAIX OVERPASS AND RAIL STATION ACCESS

An overpass connecting developing areas and a commuter rail station, designed to be a landmark in the area



Needs

Background

The Sécheron area, in the north of Geneva, is a new office building neighbourhood in a former industrial area. Close to the United Nations building and with good connections to Geneva city centre and airport, its location makes it a very attractive area for international companies.

With the future development of the area already predicted, a new commuter rail station was built at the site in 2004, to serve both the existing UN site and the upcoming office area.

Challenge

The built rail station already had a single entrance at its northernmost end, and incorporated a pedestrian passageway that could be linked at the southernmost end. Hence the aim of the project is to provide access to the station from the south, while creating new northsouth and east-west connections for pedestrians and cyclists.

The overpass intends to connect both sides of the growing Sécheron area, while placing the train station at the heart of the neighbourhood.

Design

The overpass has a non-rectilinear shape, with two guardrails formed by triangular trusses with changing heights: as one side rises, the other falls. The guardrails are translucent with embedded linear lighting.

Both ends of the overpass are accessible at grade, and the eastern end has two accesses: one at-grade access from the Avenue de la Paix, and one from Rue Kazem-Radjavi, with a lift and stairs.

Strengths and weaknesses

+ At-grade accesses at both ends of the overpass.

+ Use of shared spaces of adjacent buildings to improve connections.

+ Appealing lighting, creating a visual landmark in the neighbourhood.

- Tall, opaque guardrails, limiting the visual relationship with the surroundings.





^ 3-4. Before and after: a new connection that drives development.

> 5. Embedded lighting creates an appealing environment at night.



Outcomes

Impact

• The overpass has become a centrepiece, connecting developments on both sides of the railway tracks.

Lessons learnt

- Accessibility can be improved through appealing design.
- New accesses facilitate further development of the surrounding sites.
- Shared spaces of buildings can be key to the creation of new paths.

Sources: Ville de Genève

Image credit: 1. Stamen + AMB 2. Ville de Genève 3.,4. Google Earth 5. dra4.ch Nodal infrastructure

Reorganising how we move

Scope: Multimodal station Status: Built Project size: 1200 m² Year of completion: 2016

Key actors: Solec Kujawski municipality RYSY Architekci Rafał Sieraczyński



^ 1. Location of the station in Solec Kujawski, halfway between Bydgoszcz (west) and Toruń (east).

> 2. Service point joining the rail station and the bus stop.

Solec Kujawski, Poland SOLEC KUJAWSKI TRANSPORT HUB

Train and bus services under a single roof, creating an appealing urban environment for a growing metropolitan area



Needs

Background

The town of Solec Kujawski is halfway between the cities of Bydgoszcz and Toruń, the two capital cities of Poland's Kujawsko-Pomorskie region. Aiming to reinforce the conurbation formed by the two cities, a new highspeed commuter rail service has been created: BiT Clty.

This has made commuting more attractive, and given rise to new intermodality opportunities. Investment in rail stations has occurred alongside the new rail service, providing commuters with a rejuvenated experience.

Challenge

The project is located in an area previously lacking in urban planning: the pre-existing platforms were on top of an embankment, with undeveloped land on both sides and an old station building. Train tracks also divided the city in two, with few crossing points and all of them at grade.

The challenge is to reorganise the urban landscape of the area and create an underpass that will connect the two sides of the city while creating a multimodal station with a bus station, a rail station and bicycle parking.

Design

The project rethinks the whole area with a new underpass for cars, bicycles and pedestrians, several parking areas and a new public space in front of the station building. The slope between the platforms and the street is redesigned as a seating area.

The station itself brings the different services under a single roof while creating clear connections between bus and train stops.

Strengths and weaknesses

+ A single project repurposing a whole area.

+ Promotion of commuting in relation to a new service.

+ Attractive and high-quality urban design, promoting the station as a place to gather and spend time.

- Lack of integration of other, non-mobility services.

- The appeal of the station has not been used for further development of the area.







> 5. Bus and rail stations are easily connected with a ramp and a seating area.



Outcomes

Impact

- More attractive commuting service.
- Safer crossing of the railway.
- Improved and attractive public space.

Lessons learnt

- New stations can generate quality public space and become community gathering points.
- Such developments should drive further transformation in the surrounding area, attracting density of people and activities.

Sources: Archdaily.com

Image credit: 1. Stamen + AMB 2.,5. © Piotr Krajewski 3.,4. Google Earth Nodal infrastructure

Planning the metropolis

Scope: Regional planning Status: Integrated in planning, to be executed

Key actors: Communauté métropolitaine de Montréal Mayors of 82 municipalities

Montréal, Canada TRANSIT-ORIENTED DEVELOPMENT MODEL

A new planning scheme that favours the creation of dense, vibrant and well-connected neighbourhoods throughout the metropolitan area



> 1. Location of transport oriented development areas in the Montréal metropolitan area.

Needs

Background

Despite being a low-density, sprawling city, Montréal is deeply linked to transport. Historically, it has been a hub for rail and bus services, and many of its neighbourhoods developed along streetcar or commuter rail lines.

However, since the adoption of the Metropolitan Land Use and Development Plan in 2001, the metropolitan area has shifted from municipality-led to regional-level planning. Under the Metropolitan Plan, the implementation of transport-oriented development (TOD) schemes has fostered real estate development that promotes the construction of mass transport infrastructure.

Challenge

The Montréal metropolitan area faces different challenges since the implementation of the Metropolitan Plan. From a management standpoint, the challenge remains to convince all 82 mayors to rally behind the plan in the interests of the metropolitan area as a whole.

From a developmental viewpoint, the Montreal metropolitan area needs to grow in a more dense and compact way and, where possible, in areas with good transport connections.

Process

Implementation of the TOD model began with the designation of 155 TOD areas in the metropolitan area under the Metropolitan Plan, to be carried out in no specific order.

TOD have to be promoted by the municipalities themselves, with the Communauté métropolitaine de Montréal providing only coordination and expertise. The schemes must also assemble the different stakeholders, including land owners and developers.

Finally, it is unclear whether TOD are to be carried out before or after transport infrastructure is up and running.

Strengths and weaknesses

+ The TOD model has created a high level of political consensus between different levels of government.

+ TOD allow smaller towns to position themselves at a regional level.

+ Municipalities see TOD as a development opportunity and a chance to collect more taxes.

- TOD are being developed without any plan to improve the already overloaded transport system.



^ 2. Example of a transit oriented development plan: TOD Bois-Franc.

> 3. Rendering of the proposed station and plaza at the TOD Bois-Franc.

Sources: Montreal.ca Maude Cournoyer-Gendron, The Transit-Oriented Development Model in Montreal, *Environnement Urbain*, 2017.

Image credit: 1. PMAD du Grand Montréal 2.,3. Planification detaillée aire TOD Bois-Franc



Outcomes

Expected impact

- This development model is expected to allow more sustainable and compact growth.
- TOD will create vibrant, wellserved centres in low-density neighbourhoods .
- TOD will allow for a more balanced metropolitan area, with smaller outskirts playing an important role.

Lessons learnt

- Despite limiting municipal independence, regional planning can be empowering for smaller municipalities.
- Planning schemes can be used to foster political consensus.

Nodal infrastructure

Adding ecosystem functions

Scope: Environmental integration Status: Built Project size: 12.000 m² Year of completion: 2014

Key actors: NS - Train operator City of Amsterdam -Dept. of Environmental Planning



^ 1. Location of the project in Amsterdam.

> 2. Newly built green area in front of the station.

Amsterdam, Netherlands ORLYPLEIN REDEVELOPMENT AT SLOTERDIJK STATION

Making the surroundings of a station greener and friendlier for pedestrians and cyclists



Needs

Background

Sloterdijk station on the west side of Amsterdam is an intermodal station served by trains, trams, buses and bicycles.

The station, located at the centre of a business area, lacks an urban feel, with other uses some distance away. The entrance plaza, Orlysquare, was also unwelcoming, with concrete predominant in a space where local and longdistance buses mingled with trams.

However, buses and trams were relocated in an adjacent area, making it possible to repurpose the plaza at a time when the whole business area was undergoing a rethink to incorporate new uses.

Challenge

Repurposing such a large space, most of it above train tracks, posed a broad set of challenges. On the one hand, the space needed to integrate a large bicycle parking area and a cycle path crossing, and it also needed to include a kiss-and-ride area.

On the other hand, following Amsterdam's pledge to make the city more climate-resilient and rainproof, the project was the perfect opportunity to add permeable areas with new greenery, despite most of the plaza occupying a deck above the rail tracks.

Design

The design is composed of two main elements, a promenade and a green square.

The promenade connects the station with the adjacent office buildings and with two train platforms located across the plaza.

The green square provides a comfortable area to spend time in, with capacity to store rainwater and parking for 1,000 bicycles integrated into the design. Species present in the Brettenpark were chosen for the plaza.

Strengths and weaknesses

+ Creation of large, new green spaces.

+ Prioritisation of active mobility modes.

+ Improvement of a formerly run-down public realm.

+ Clear connection between different parts of the station.





^ 3-4. Before and after: integrating the bike park into the green.

> 5. Paths leading to the station.



Outcomes

Impact

- Improved water management in times of heavy rainfall.
- · Improved, welcoming public space.
- $\cdot\, \mathrm{New}$ activities in the area.

Lessons learnt

- Low-level greenery is capable of storing rainwater.
- New transport stops offer opportunities to rethink former spaces.

Sources: Landezine.com

Image credit: 1. Stamen + AMB 2.,4.,5. Landezine.com 3. tgs.nl

Fostering social inclusion

Scope: Cooperative housing Status: Built Project size: 6,350m² Year of completion: 2014

Key actors: Kalkbreite Cooperative Müller Sigrist Architects HAAG. LA, Landscaping



^ 1. Location of the project in Zurich.

> 2. The housing complex is connected to a central street via different mobility options.

Zurich, Switzerland KALKBREITE: COOPERATIVE HOUSING OVER TRAM DEPOT

A collective approach transforms tram infrastructure into a community centre connected to street life, intensifying the neighbourhood



Needs

Background

A tram depot 1.5 kilometres from the main train station was one of few remaining unbuilt plots in Zurich's city centre.

The site is in a central location, next to a pre-existing restaurant and cultural centre, but occupied by a tram depot that concealed its potential urbanity.

The rising need for affordable housing in the city of Zurich and a culture of association and cooperation eager to explore new lifestyles came together to unveil the hidden possibilities of this site.

Challenge

The challenge was to make more efficient use of a site in a central location of Zurich, by densifying the plot while preserving the function of the existing tram depot.

The project aimed to build a multi-use building with predominantly housing but also retail and community uses, while keeping the tram depot on the ground floor.

The cooperative approach employed required a participatory process to craft a forward-looking vision into the definition of housing today.

Process

Through the foundation of the Kalkbreite Cooperative to oversee design and implementation, building rights were granted by the city of Zurich.

A public competition and cultural events held at the pre-existing Rosengarten restaurant on the site encouraged debate on the project.

Design

The design focuses on collective spaces and flexible housing units linked to "interior" and "exterior" streets, which come together in new public spaces on top of the retained tram depot.

Strengths and weaknesses

+ A cooperative approach involves residents in the design phase, encouraging a sense of belonging to the project.

+ The intensification of the urban context respects the pre-existing spaces.

+ Adjacency to the public transport network guarantees excellent connections with the rest of the city.

- Cooperative housing on a public site can be detrimental to potential occupants, who are not selected according to the same social criteria as those used for public housing allocation.



Outcomes

Impact

- The project successfully layered social and mobility activities into a single building.
- The cooperative approach managed unused public resources, which were reclaimed for the community and successfully integrated into the city.

Lessons learnt

- Approaches that engage with local stakeholders are able to harness a deeper sense of belonging than more conventional processes.
- The re-use of transport infrastructure in central locations can lead to intense, diverse solutions.



^ 3-4. Before and after: from a tram depot to a diverse housing complex.

> 5. Changes in section and the integration of public spaces help to assemble the block with its surroundings.

Sources: kalkbreite.net/en/ livingthecity.eu/2020/09/07/ wohn-und-gewerbebau-kalkbreite/

Image credit: 1. Stamen + AMB

- 2. Martin Stollenwerk
- 3.,4. Stad Zuerich
- 5. Volker Schopp

Nodal infrastructure

Reorganising how we move

Scope: Environmental integration Status: Built Project size: Vallecas neighbourhood Active period: 2016-2019

Key actors: City of Madrid UIA-EU Urban Initiative Actions Local organisations



^ 1. Location of the Vallecas project in Madrid.

> 2. View of a proposed urban condenser, "MAR de Movilidad" (Sea of Mobility).

Madrid, Spain MAR DE MOVILIDAD MOBILITY INITIATIVE INCUBATOR

A place to promote mobility-related social economy projects to transform the Vallecas neighbourhood



Needs

Background

Selected as an EU-UIA (Urban Innovative Action) initiative, the aim of the project was to reinvigorate the associative fabric of Madrid as a whole. The focus was subdivided into specific themes such as "Mobility" in the case of the Vallecas neighbourhood.

The low-income Puente de Vallecas neighbourhood already featured a pre-existing network of groups and people which had emerged during the 2010s in response to the battering received by conventional enterprises as a result of the grave economic crisis. The hypothesis was that these new fabrics could be galvanised to improve the urban and economic resilience of the district.

Challenge

Having first catalogued the groups that made up this network, it was necessary to determine a topic around which activity could converge. Preliminary studies showed a need

for a shift in mobility patterns as well as the potential of the district's associative fabric in relation to mobility.

The objective of the project was therefore to promote a more sustainable and active mobility model, turning the last-mile needs of local commerce and residents into an opportunity of its own. The involvement of many stakeholders obliged the project to hinge on elements of common interest around a single topic and design strategies that could satisfy all their needs.

Process

The project reactivated an unused municipal building in Vallecas, and listed all the surrounding associations that could participate. Having established the space and the stakeholders, different training initiatives were promoted, including courses, "learning communities and fab labs. Here citizens and entrepreneurs could share their needs and ideas, and even test new mobility projects such as Tu compra a pedales, which piloted the idea of delivering groceries by bike and trike.

These initiatives aimed to create a networking ecosystem that would lead to new mobility businesses.

Strengths and weaknesses

+ Positive synergies around a common topic made use of the strength of its parts to improve the whole mobility model.

+ As a process-focused project, its social aspect allowed a deeper connection to the social fabric than a project revolving around a physical object.

- A change in government, coupled with the project's ephemeral nature as a three-year, EU-funded initiative, resulted in a lack of continuity that prevented the project from creating a self-sustaining dynamic.





^ 3-4. Initiatives in action: grocery delivery and bike parking.

> 5-6. Initial association mapping and final map of stakeholders.





Impact

- Twenty-nine socially focused businesses took part or were created through MAR de Movilidad.
- Six learning communities were created.
- Three social initiatives were created: grocery bike/trike delivery, e-commerce bike delivery and active mobility courses.

Lessons learnt

- The focus on emerging sustainable enterprises demonstrated the viability of these on a local scale.
- Associative strategies require methodologies that balance expeditive and people-centred mindsets.
- Despite the continuation of the enterprises, the underlying strategy ended with the project.

Sources: maresmadrid.es

Image credit: 1. Stamen + AMB 2.,4.,5.,6. Mares Madrid 3. EcoHabitar Linear infrastructure

Adding ecosystem functions

Scope: Environmental integration Status: Built Project size: 12 km in length Year of completion: 2017

Key actors: Via Brugge / Via-Invest Bureau Bas Smets ZJA Architects



^ 1. Location of the new road, between Brugge and Zeebrugge.

> 2. Bridge over the Leopoldkanaal.

Brugge, Belgium A11 MOTORWAY

Can infrastructure improve the landscape? The new stretch of the A11 blends with nature through clean design and new planting



Needs

Background

The A11 motorway is a vital transport connection in Belgium, connecting the country's three main ports at Antwerp, Ghent and Zeebrugge.

Most of the motorway was built in the 1980s by upgrading a preexisting national road to motorway standards.

However, a final 12 km-long stretch remained to be built on the outskirts of Brugge to ensure that cargo traffic arrived at Zeebrugge port without overloading the Brugge ring or local roads.

Challenge

The challenge of the project lies in the delicate, very flat polder landscape the road sits on. Consequently, the goal is to minimise the visual impact of the highway.

The new connection also sits perpendicular to the water flow, and to the north-south, natural active mobility connections in the area. The project therefore needs to guarantee permeability for both nature and people.

Design

The A11 motorway in the landscape places the environment at the centre, using it as a primary tool for landscape integration. To do so, trees are used to reinforce cycle paths and reduce visual impact, and ecopassages and water ponds are introduced at crossings.

The infrastructure itself is also designed to reduce the environmental impact: bridges sit delicately in the ground, and coverings are wide enough for the landscape to be continuous. Finally, the project also pays attention to local connections, avoiding barrier-like roads at city entrances.

Strengths and weaknesses

+ The design enhances the values of the pre-existing landscape while adding new functions.

+ Permeability for animals and local, active connections guaranteed.

+ The project is developed according to a design, build, finance and maintain (DBFM) scheme, which may promote better initial investment to reduce maintenance costs.

- The project is the costliest road project in Belgium, at 56 million euros per kilometre.





^ 3-4. Examples of paths and underpasses.

> 5. Roundabout with pedestrian connections in the entrance of Westkapelle.



Outcomes

Impact

- \cdot Less traffic on local roads.
- Improved, safer cycling connections.
- · Improved landscaping of canals.

Lessons learnt

• Large-scale infrastructures can be well integrated into the landscape.

Sources: Bureau Bas Smets

Image credit: 1. Stamen + AMB 2.,3.,4. © Bureau Bas Smets 5. © ZJA Architets

Planning the metropolis

Scope: Road covering Status: Built Project size: 25 ha Year of completion: 2020

Key actors: French government Région Île-de-France Ville de Paris



^ 1. Location of the project in Paris.

> 2. Newly built cinema and plaza above the ring road.

Paris, France PORTE DES LILAS: RING ROAD COVERING AND URBAN DEVELOPMENT

A 350 metre-long covering that has triggered a large urban development, reconnecting Paris to the neighbouring community of Les Lilas



Needs

Background

Construction of the Boulevard Périphérique ring road began in 1956. The road defines the city limits of Paris and constitutes a barrier between Paris and the municipalities that surround it. The main crossing points are at the different portes or city gates where the old radial routes that lead to the Paris city centre cross the Périphérique.

In 2003, the national government and the region agreed to cover the Périphérique at three of these portes: Porte de Vanves, Porte de Ternes/ Champerret and Porte des Lilas.

Challenge

The ring road has created an array of residual spaces, leaving room for densification and new uses, especially around each of the *portes*.

In the case of the Porte des Lilas, an access point from the municipality of Les Lilas to Paris, the challenge is to rethink the relationship between the ground and the level of the road (in a trench) so as to allow local connections while preserving the road's access points.

A further aim of the project is to densify the area, which has limited space for new construction.
Process

The first phase of the project, comprising the covering of the ring road, was paid for by the central government, while the buildings were promoted by the city council.

Design

The project covers the ring road along a 350 metre-long stretch at the Porte des Lilas junction. The public space is divided into three spaces: a park, a square and a circus space. The project also develops new buildings: a cinema in the space formerly occupied by part of the junction, with new student housing, residential and office buildings in the empty surrounding spaces.

Strengths and weaknesses

+ Active central plaza with cinema and several transport stops.

+ Long covering, to ensure the central plaza conveys no sense of being above the ring road.

+ Mixed uses and redevelopment of a street parallel to the ring road.



^ 3-4. Aerial view in 2004 (above) and 2018.

> 5. Covering as seen in plan and in place.



Outcomes

Impact

- Easier connections between Paris and the neighbouring municipality of Les Lilas.
- 125,000 m² of new floor space on 25 hectares of land.
- · New cultural and office uses.
- · More social housing.

Lessons learnt

- Highway coverings are a great opportunity to rethink accesses and reduce soil consumption.
- Once covered, high-value uses can be created alongside a major road.

Sources: Paris & Métropole Aménagement

Image credit: 1. Stamen + AMB 2. © Sergio Grazia 3.,4. Google Earth 5. © BRS Architectes

Integrating the infrastructure

Scope: Waterfront Status: Built Project size: 3 km long, 24 ha Year of completion: 2013

Key actors: Nikiforidis-Cuomo Architects Thessaloniki Municipality



^ 1. Location of the project in Manchester.

> 2. Resulting layout of the public realm.

Thessaloniki, Greece NEW WATERFRONT FOR THESSALONIKI

Transforming the coastline to make it an accessible place to walk along and stay, attracting locals and tourists alike



Needs

Background

The port city of Thessaloniki has a long urban façade that faces the Aegean Sea. All along the coastline, a linear dock separates land and sea, with no beaches or access to the water.

However, the distances between the waterfront dock and the built area vary significantly along the coastline. At the level of the city centre, the buildings and the dock are separated only by a two-lane street, while a 40- to 120-metre-wide unused space separates the waterfront from the city at the level of the Agia Triada neighbourhood.

Challenge

The project redevelops the waterfront in front of the Agia Triada neighbourhood along a 3-km stretch of coastline. This stretch of the coastline connects two important city features: at the northern end, the White Tower and the city centre; and at the southern end, the Opera House.

The objective is to repurpose this large, unprogrammed space between the city and the coastline, while providing a refurbished walkway along the length of the coastline.

Design

The waterfront is divided into two main parts. The first is the walkway, on the limit between land and sea, offering a continuous path all along the coastline and an open view to the horizon.

The second part is inland, where thematic gardens offer spaces for recreation and sports. In stark contrast to the walkway, the gardens are soft and pervious, with shady spaces that provide shelter from the sun.

Strengths and weaknesses

+ Clear project, offering a barrierfree, continuous path.

+ Gardens offer rest and shady spaces, facilitating alternative uses.

+ Sculptural features and architecture create a varied walk.

- The intervention has not rethought access to the waterfront from the surrounding neighbourhoods.





^ 3-4. Before and after: from an old station building to a modern hub with a safe underpass.

> 5. Gardens provide a superb area for gatherings and activities.



Outcomes

Impact

• New bustling leisure space for residents and tourists alike.

Lessons learnt

• Waterfronts are unique spaces, and their transformation into civic places is generally well received.

Sources: archdaily.com

Image credit: 1. Stamen + AMB 2. © Erieta Attali 3.,4. Google Earth 5. Nikiforidis-Cuomo Architects

Integrating the infrastructure

Scope: Temporary occupation Status: Built Project size: 1,100 m² Year of completion: 2019

Key actors: Manchester City Council Bruntwood group



^ 1. Location of the project in Manchester.

> 2. Façade of Hatch! towards Oxford Road, reactivating the underpass.

Manchester, United Kingdom HATCH! RETAIL AND FOOD COURT BELOW A MAJOR RING ROAD

Pop-up activities as a tool to reactivate residual spaces around infrastructure: so successful it is set to become permanent



Needs

Background

The city centre in Manchester is surrounded by a four-lane elevated ring road, the Mancunian Way, which marks a clear divide between the city's business and commercial area and the surrounding residential areas.

The ring road creates a vast amount of residual space underneath it, and large junctions at its access points. As a result, most of the underpasses feel like unsafe spaces for citizens, with no activity other than parking lots.

Challenge

The crossing between Mancunian Way and Oxford Road, however, represents an opportunity for the reactivation of one of such underpasses. Oxford Road is a main artery structuring the city centre, connecting relevant interest points and with a high volume of pedestrian traffic, yet lacking in quality retail outlets.

In addition, there is no direct access from Oxford Road to the Mancunian Way, thus facilitating the redevelopment of the underpass. This area is also in the centre of the Innovation District, with the recent Circle Square development and university campuses close by. The challenge is to improve this underpass with new retail and dining spaces and an attractive cultural offering.

Process

The process was triggered by the interest of a private developer already involved in the execution of the Circle Square masterplan nearby, and has been executed in two phases. The first phase resulted in the creation of the façade towards Oxford Road, with 230 m² of space. The second phase grew to 1,100 m² below Mancunian Way, with new features such as a stage and DJ terrace, workshops and studios.

Design

The retail and dining space has been created in a semi-permanent way, with colourful containers and a focus on good lighting.

Strengths and weaknesses

+ Successful public-private partnership.

+ Reactivation of unused space in key location.

+ Semi-permanent design, facilitating future redevelopment of the underpass.

+ Versatile space covered by the ring road, which also blocks noise from the events.





^ 3-4. Before and after: from an unused, unsafe space to a lively destination.

> 5. Retail, dining and events activate the space below the road.



Outcomes

Impact

- Safer underpass and reuse of former residual space.
- Over 30 retail and dining options.
- · Weekly events.

Lessons learnt

- Spaces around infrastructures can offer remarkable opportunities for new activities.
- To be successful, such projects must be strategically located.

Sources: Bruntwood works

Image credit: 1. Stamen + AMB 2.,4.,5. Bruntwood works 3. Google Street View

Linear infrastructure Reorganising how we move

Scope: Rails-to-trails Status: Built Project size: 1.5 km in length Year of completion: 2012

Key actors: Helsinki local government Local residents and students Loci Landscape Architects



^ 1. Location of the project in Helsinki.

> 2. Underpass below a major road interchange.

Helsinki, Finland "BAANA" PEDESTRIAN AND CYCLE CORRIDOR

A railway cutting converted into a civic corridor through a collaborative process, preserving the memory of an industrial past



Needs

Background

In 1894, a railway line was constructed on the outskirts of Helsinki, running between the central station and Länsisatama ("West Harbour"). The infrastructure required the excavation of an uncovered cutting, seven metres deep and almost a kilometre and a half long. With the subsequent expansion of Helsinki, the cutting was surrounded and became a gash in the urban fabric.

In 2008, the cargo port was moved to the Vuosaari neighbourhood and work began on a new residential zone in Länsisatama. The railway connection which had been used to transport goods between the port and the station was no longer necessary and the future of the cutting was uncertain.

Challenge

The decommissioning of the railway and the urban development under way offered the opportunity to rethink the cutting. While the idealistic covering of the cutting and creation of an underground tunnel would provide a greater continuity of the surrounding urban fabric, this option would be costly and time-consuming.

The present project aims to give a second life to this infrastructure with minimal intervention, while preserving the memory of its former use. In the process, the involvement of local citizens will be key.

Process

The design was developed by means of a competition for architecture, art and design students, and international workshops. Proposals were then presented to residents for their criticisms and suggestions.

Design

An asphalted, accessible cycle path has been built, preserving and renovating the original structures and materials where possible. Sports and artistic installations and new lighting have also been added, and existing plants have been supplemented with diverse vegetation.

Strengths and weaknesses

+ Impressive collaboration between different stakeholders: institutions, academia and local residents.

+ Insertion of colourful elements into what was a predominantly grey ambience.

+ Insertion of more varied vegetation.

+ Connection between city centre and new urban development.





- ^ 3-4. Before and after: from a railway to an accessible path.
- > 5. Sports areas along the path.



Outcomes

Impact

- The project opens up a new civic space.
- The project has been deemed so successful that the creation of a city-wide "Baana" network is under discussion.
- The covering of the cutting is no longer a priority .

Lessons learnt

- Old infrastructures can be repurposed without making drastic changes.
- Collaboration between institutions, academia and local residents can lead to outstanding, citizenfriendly design.

Sources: Publicspace.org

Image credit: 1. Stamen + AMB 2.,4.,5. © Krista Muurinen 3. Unknown

Reorganising how we move

Scope: Cycle infrastructure Status: Built Project size: 800 m in length Year of completion: 2017

Key actors: Àrea Metropolitana de Barcelona Batlle i Roig (architectural firm)



^ 1. Location of the project in the Barcelona metropolitan area.

> 2. Underpass below a major road interchange.

Barcelona, Spain BARCELONA - ESPLUGUES CYCLE PATH

A cycle path connecting the city to a neighbouring municipality, offering cyclists a safe, agreeable means of crossing major road infrastructure



Needs

Background

The city of Barcelona has been developed according to the Eixample project, drawn up by Ildefons Cerdà in 1859. This plan envisaged the urbanisation of the city along an orthogonal grid of equally sized streets, with only three main avenues: Gran Via, Meridiana and Diagonal.

A main city gateway for motorists, Avinguda Diagonal is a complex set of major road interchanges at its southernmost tip, where the avenue becomes a motorway, the B-23, and intersects with another motorway, the B-20 or Ronda de Dalt.

Challenge

The entanglement of the road infrastructure makes it difficult to access the city via Avinguda Diagonal by bicycle or on foot, and the city of Barcelona remains disconnected from the neighbouring town of Esplugues de Llobregat at this point.

Despite the short distance between the built areas of both municipalities, walking or cycling between them has long presented a challenge. The project therefore aims to connect the two municipalities by providing a safe path for crossing major road infrastructure.

Design

The layout of the proposed path for pedestrians and bicycles is adapted to adjust it as far as possible to the level of the ground and provide the best possible gradients for cyclists.

In parts walkway (above the access lane to Les Rondes), in parts tunnel (repurposing of a disused access lane), the path pleasantly redefines the margins of the dual carriageway. The aim is to soften the landscape impact while creating urban green connectivity along the route.

Strengths and weaknesses

+ Small project with significant metropolitan impact.

+ Creation of rest areas along the path.

+ Easy crossing of major road infrastructure.

+ Limited use of land, reclaiming residual spaces (e.g. cloverleaf junctions and banks).

- No clear end towards Esplugues.



^ 3. Rest area at the midpoint of the path.

> 4. Cycle path on the left, alongside the highway leading to Avinguda Diagonal.



Outcomes

Impact

- The project enables a fast city connection by bicycle.
- · 300,000 bicycle journeys taken in a year along this cycle path.

Lessons learnt

- Major road projects need to incorporate the need for local connections.
- Soft mobility infrastructure can be built with limited space and budget.

Sources: Batlle i Roig

Image credit: 1. Stamen + AMB 2-4. © Jordi Surroca Linear infrastructure

Planning the metropolis

Scope: Highway transformation Status: In development Project size: 4.7km in length Development: since 2011 (1st phase)

Key actors: Transports of Montréal, Société du Havre, Sud-Ouest and Ville Marie boroughs.



^ 1. Location of the curretly built phases within Monetreal

> 2. New public spaces replace the viaduct In Montreal's downtown area.

Montréal, Canada A-10 BONAVENTURE, DECONSTRUCTION OF AN EXPRESSWAY

Regeneration of the Le Havre de Montréal, an industrial and port sector, through deconstruction of the A-10 as part of a long-term strategy



Needs

Background

The Bonaventure Expressway (A-10) was built in 1966 for Expo 67, the World's Fair held in Montreal in 1967. It is now the main access to the downtown area of the city, with 50 thousand vehicles using it every day. Cutting across the port district of Le Havre, directly adjacent to the city centre, it also connects with two urban highways, the A-15 and the A-720, at both of its ends within the city.

This expressway is perceived as an example of urban fracture and a barrier between the city and the St. Laurence river, impacting an area of 200 ha.

Challenge

The proposal aims to remove the A-10 viaduct and integrate the districts it cuts across into one, generating new public spaces with the ultimate aim of transforming this barrier into a connector between the city centre, the Le Havre district and the river.

The project also unlocks the redevelopment of the Le Havre district, allowing for densification of the area. The main focus of the project is the transformation of areas closest to the downtown area.

Process

To meet these challenges, the project has been under analysis since 2002, and is part of the Montreal Master Plan (2004/2012).

To achieve the urban and economic reclassification of suburbs and industrial spaces, a new boulevard will replace the A-10, to be executed in phases, the first of which was completed in 2017. This is coordinated through a Transit-Oriented Development (TOD) strategy, which targets the renewal of obsolete infrastructure.

Strengths and weaknesses

+ Far-reaching and ambitious metropolitan project.

+ Improved public transportation and new public spaces In the dense downtown area.

+ Prioritisation of local district connections.

- The proposed 9-lane avenue hinders the desired urban connections.
- Lack of management structure and funding strategy has delayed implementation.





^ 3-4. The integration of infrastructure contributes to a more vibrant cityscape.

> 5. The long-term objective of the project is the complete integration of the A-10, connecting the city with Le Havre.

Sources:

Lecroart, P. Montréal: projet Bonaventure. La fin de l'autoroute Bonaventure: un projet stratégique pour Montréal. *La ville après l'autoroute: études de cas.* 2016.

Image credit:

- 1. Stamen + AMB
- 2.,3.,4. Ville de Montréal
- 5. Societé du Havre de Montréal



Outcomes

Impact

- Demolition of the viaduct in the downtown area, replaced by an avenue and public spaces.
- Greatly increased density in the area compensates the costs incurred by the operation.

• A change in mindset regarding expressways: from regional connectors to metropolitan barriers.

Lessons learnt

- Expressways can be reintegrated into the urban fabric of the city, shifting private vehicle users into public transport.
- Multiple visions and management issues are a serious burden in large-scale projects, and consensus on urban regeneration is key.

Planning the metropolis

Scope: Boulevardisation Status: Idea Project size: 16 km long Exp. year of completion: 2030

Key actors: Métropole de Lyon



^ 1. Location of the project in the Lyon metropolis.

> 2. The highway today, as it approaches the confluence of Rhône and Saône rivers.

Lyon, France REGAINING THE RIVERFRONT: M6/M7 HIGHWAY CORRIDOR

A complete refurbishment of one of France's busiest major roads in the city centre of Lyon, designed to reclaim the riverfront and trigger urban development



Needs

Background

A former Gallo-Roman capital and major Renaissance financial centre, Lyon is France's second-largest metropolitan area with 1.4 million inhabitants in the Métropole de Lyon or Grand Lyon (Greater Lyon), and 3.36 million in the wider urban region in 2017.

The city and its region have been mainly shaped by its major roads, which were developed after WWII, in common with much of France's major road network. The A6 from the north of Lyon to Paris, built between 1960 and 1971, and the A7 from the south to Marseille, built between 1951 and 1969, are two of the most important arteries of this road system, with a total length of 772 km.

Challenge

Following the intersection of the A6 and A7, this high-speed road that traversed the centre of Lyon became one of the city's most congested axes. The inconvenience of such heavy traffic derives from its function mainly as a bypass. In addition, the highway occupies the Rhône riverbank in a central location.

The challenge now confronting the city-region is to find ways to reduce car traffic levels in order to transform the current highway into a 16-km long, multimodal, bikeable, walkable and transit-oriented urban boulevard, without building any alternative highway infrastructure and fostering urban development.

Process

2016-2021: Preparing for the boulevard

Mobility management actions are taken to reduce traffic by promoting park-and-ride, carpool and public transportation initiatives.

2021-2030: Redesigning M6/M7 as a boulevard

Gradual conversion of the highway into a multimodal urban boulevard.

Side projects

The project will enable the redesign of the Perrache multimodal station, the refurbishment of the right bank of the Rhöne, and several urban regeneration projects.

Strengths and weaknesses

+ Endeavour maintained by political leaders of different orientations.

+ Boulevardisation project linked to urban development and a new multimodal station.

+ The project aims to unbuild a major road without building new infrastructure.

- There is a lack of a clear approach on the connection between water and the city, and ecosystem functions.

- It remains to be seen whether alternative highway routes will be sufficient.

- Lack of participative discussion.



Outcomes

Expected impact

- The project plans to create major urban regeneration opportunities for deprived areas.
- Significant congestion of other streets and highways is a possible outcome

Lessons learnt

- Long-term projects need from political consensus.
- River bank spaces provide excellent opportunities for civic and natural uses.
- Infrastructure and urban development projects must be closely connected.





^ 3. Before and after: proposal for the Perrache multimodal station area.

> 4. Rendering of proposed river edge.

Sources:

Paul Lecroart and Théo Bendahan, Lyon. Regaining the Riverfront, L'Institut Paris Region, December 2020.

Image credit:

- 1. Stamen + AMB
- 2. © Lyon Mag DR
- 3. © Dumetier Design, L'Atelier Villes &
- Paysages. Photo: Métropole de Lyon
- 4. © Dumetier Design, Métropole de Lyon

Linear infrastructure

Planning the metropolis

Scope: Highway transformation Status: Built Project size: 2 km long Year of completion: 2018

Key actors: Avenue2 builders' consortium Maastricht local government Rijkswaterstaat - national public works agency



^ 1. Location of the project in Maastricht.

> 2. Tunnel entrance and linear park in the background.

Maastricht, Netherlands A2 MAJOR ROAD TUNNELLING AND DE GROENE LOPER DEVELOPMENT

A major road that split the city, now covered and converted into a linear park that is encouraging new residential development



Needs

Background

The city of Maastricht in the Netherlands was drastically divided by the A2 motorway, causing the eastern part of the city to be isolated from the city centre and impacting on residents quality of life, while still causing traffic congestion due to traffic lights.

Consequently, there was a clear consensus for rethinking the A2 in its passage through the city, but without creating a ring road that would be detrimental to the landscape around the city.

Challenge

The challenge was to eliminate this scar on the city by burying the A2 in a tunnel and returning the street level to the city.

In doing so, the eastern part of the city would be reconnected with the centre, new public spaces would be created, and land would be liberated for housing development.

A significant element of the challenge was the management of traffic during construction, given the impossibility of halting the flow and the lack of available alternative routes.

Design

A double-decked tunnel was built, with local traffic running on the upper deck and through traffic on the lower.

At street level, a linear park has been created, with residential buildings to come.

Process

The double-decked design enabled the use of less land. This was vital for construction management, given that it allowed space to create bypasses on each side, which enabled the flow of traffic to be maintained during construction. In addition, an open consultation and communication strategy was used.

Strengths and weaknesses

+ Outstanding collaboration between different stakeholders and institutions.

+ Innovative double-decked tunnel, separating traffic and using less land.

+ Friendly urban space at street level, facilitating local connections.

+ An open consultation and communication strategy was able to minimise friction with the public.

- + Future housing development.
- Extremely high-cost project.





^ 3-4. Before and after: from a highway to a park.

> 5. Illustration of the double-decked tunnel, with local traffic on the upper level and through traffic on the lower.



Outcomes

Impact

- The project eliminates a significant barrier in the city.
- Traffic keeps flowing while the street level is recovered for residents.
- The project is poised to create new development opportunities.

Lessons learnt

- Innovative infrastructure solutions can help with management as well as the final result of a project.
- Collaboration between institutions, academia and residents can lead to outstanding, citizen-friendly design.

Sources: A2maastricht.nl

Image credit: 1. Stamen + AMB 2.,4. © Aron Nijs 3. © Flying Eye 5. Avenue2 Linear infrastructure

Planning the metropolis

Scope: Highway transformation Status: Built Project size: 31,23 ha Year of completion: 2007 (highway)

Key actors: L'Hospitalet local government Generalitat de Catalunya Granvia public consortium



^ 1. Location of the project in the Barcelona metropolis.

> 2. Aerial view of the Plaça Europa.

Barcelona, Spain PLAÇA EUROPA AND GRAN VIA HIGHWAY TRANSFORMATION

A radical transformation of a major road that has facilitated a new centrality and public spaces, at no cost to public institutions



Needs

Background

Gran Via is one of the main entrance axes of Barcelona. This major road extends to the neighbouring town of L'Hospitalet, where it effectively split the town in two, given that the highway could only be crossed at sporadic elevated bridges.

In addition, the highway was creating vast, unused residual spaces along its sides and at cloverleaf junctions. However, Gran Via had outstanding growth and centrality potential as the main connection between the Barcelona city centre and the airport.

Challenge

The challenge was to remove the scar made by Gran Via in L'Hospitalet by integrating the road into the urban fabric and enabling local connections.

In addition, the new convention centre would create a new centrality, with new office, hotel and residential buildings.

Financial sustainability was also part of the challenge, since government agencies could not afford a major road transformation. The new plots created would therefore have to pay for the whole operation.

Process

The process was led by a consortium of the local and regional government, the owners of the road, which succeeded in avoiding any expense to them. To achieve this, land devoted to infrastructure was reduced, and the rest was sold for development, generating the funds to pay for the major road transformation.

Design

The design of the highway is remarkable: through traffic is restricted to the lower level, while local traffic is concentrated at street level, creating a welcoming environment. Buildings by prominent architects have also given an identity to the plaza.

Strengths and weaknesses

+ Outstanding collaboration between institutions and developers.

+ Successful major road redevelopment, with an easily crossable section.

+ New mixed-use centrality as a business district.

- High-price land sales led to delays in the execution of residential developments.



^ 3-4. Before and after: from a radical border to green spaces and buildings.

> 5. Local traffic on the upper level and through traffic on the lower level (left side).

Sources:

Presentation by Antoni Nogués -Consorci per a la reforma de la Granvia de l'Hospitalet.

Image credit: 1. Stamen + AMB

- 2. AMB
- 2. AMB
- 3.,4. ICGC Institut Cartogràfic i Geològic de Catalunya
- 5. CC BY Jorge Franganillo



Outcomes

Impact

- The project created an important, well-connected business centrality.
- The project succeeded in integrating the former major road.
- Plaça Europa has become a recognisable icon for the whole metropolis.

Lessons learnt

- City projects can be executed at no cost if land for private development is created and sold.
- Selling land at higher prices may result in slower development and is therefore not necessarily better for institutions.

Adding ecosystem functions

Scope: Energy generation Status: Built Project size: 10 km in length Year of completion: 2012 (cycle lane), 2019 (solar roof)

Key actors: MOLIT Ministry of Land, Infrastructure and Transport of South Korea



^ 1. Location of the bike lane, between Sejong (north) and Daejeon (south)

> 2. Beginning of the solar roof.

South Korea DAEJEON-SEJONG SOLAR BIKE HIGHWAY

An innovative solution to install solar panels while reinforcing active mobility between cities



Needs

Background

South Korea's capital, Seoul, is a densely populated city with a metropolitan area of more than 25 million people. To avoid further density and growth, in 2002 South Korean officials decided to create a new city which would be the country's administrative capital.

The new city, Sejong, is located in the centre of the country, on a site 120 km south of Seoul, across the Geum river and surrounded by a hilly landscape. This has drawn huge investment to build new connections, mainly roads, to the city.

Challenge

The complex topography of the landscape surrounding the city makes it difficult to create new infrastructure connections: primarily major roads, but also railway lines and cycle paths.

The challenge of the project was to add a new connection for active mobility between Sejong and the neighbouring city of Daejeon, while showing a commitment to the environment and "smart" design in the newly built city.

Design

The cycle lane connecting the two cities runs down the middle of the dual carriageway, in the median strip.

The cycle lane is covered with a solar roof consisting of 4x4-metre modules placed along the length of the path. The roof generates energy while offering protection from sun and rain to cyclists.

Along the 10-km stretch, the cycle lane has four access points via underpasses, connecting the cycle lane with local communities.

Strengths and weaknesses

- + Clear, direct intercity connection.
- + Gentle gradient.

+ Cyclists shielded from rain, snow and sun.

+ Cyclists keep their eyes on the path.

- Cyclists surrounded by noise and pollution.



 3-4. Different configurations of the solar roof, depending on the orientation.

> 5. Aerial view of the cycle lane in the median strip.

Sources: road.cc inhabitat.com

Image credit:

- Stamen + AMB
 sportplushealth.com
- 3. Korea Clickers
- 4. koreabybike.com
- 5. researchgate.com



Outcomes

Impact

- The solar roof generates 2546 MWh, sufficient to power 480 households.
- The route provides direct intercity connection.

Lessons learnt

• Cycling spaces alongside hightraffic routes should be shielded to improve the cycling experience.

Adding ecosystem functions

Scope: Infrastructure overhaul Status: Built Project size: 1.5km in length Year of completion: 2020

Key actors: City of Utrecht Klepierre retail Jaarbeurs art centre NS Netherlands rail



^ 1. Location of the new canal within Utrecht.

> 2. A green ring promotes mixed-use development along its sides.

Utrecht, The Netherlands THE SINGEL: RING ROAD OVERHAUL TO BRING BACK THE CANAL

A large-scale project that redefines the city's perimeter and improves its urban condition through a new sustainable landscape.



Needs

Background

Like most Dutch cities, Utrecht featured a canal that encircled the perimeter of its urban core. Following a period of countrywide motorisation, a 1958 plan proposed to demolish the canal and build a ring road in its trace. Although opposition to the plan resulted in some of its segments being saved, the canal was mostly demolished.

The urban environment of the converted ring road sections, located next to the central train station and a major commercial area, has seen improvements since the late 1980s, but the increased pressure felt by the historic city close to the station area and the division created by the ring road remain a major concern for the city.

Challenge

The main objective of the project was the removal of the ring road, and its replacement with a canal that retraced the void left behind. This operation was expected to improve connections between the station and the urban core through enhancement of the public spaces in between.

It was therefore important to take into account the different urban fabrics, and consider how a new landscape could repair this divide. The overhaul of the ring road was also an opportunity to commit to active mobility: new cycle and pedestrian bridges across the canal were built, and public transport services were improved with a clearer connection to the train station.

Process

Following a series of public consultations, the restoration of the canal was included in a wider Master Plan that also involved the nearby central train station. The canal was built in segments, from 2001 to 2020.

Design

The design of the new canal responds to input from citizen consultation, as section changes are made according to the needs of each segment. These needs are reassessed prior to the building of each new project phase to ensure a democratic and up-to-date urban environment.

Strengths and weaknesses

+ A green public landscape forms an interlude between two different urban fabrics, healing the conflict between the two.

+ Allows for the introduction of new uses.

+ Sustainable and culturally sensitive, the urban environment is improved by retracing the steps of a vernacular public space.

+ The phase-by-phase approach allows the design to be updated to current needs over a long time scale.





^ 3-4. The canal creates a more sustainable environment.

> 5. Water and train tracks now define the city perimeter.



Outcomes

Impact

- Long-awaited restoration of an urban landscape.
- Design focused on ecology and active mobility makes the city more sustainable.
- Demolition of the ring road repairs a disjointed perimeter.

Lessons learnt

- Large scale projects can be modified during their construction to fit new needs when executed phase by phase.
- Social input is key to sustaining engagement over a long time scale.
- A challenge to the status quo view on mobility can lead to great improvement of urban space.

Sources: cu2030.nl/page/singel

Image credit: 1. Stamen + AMB 2., 3., 4., 5. City of Utrecht

Adding ecosystem functions

Scope: Greenery integration Status: Tested Project size: 130 m long (test) Year of completion: 2015 (test)

Key actors: GVB - Amsterdam Municipal Transport Company



^ 1. Location of the project in Amsterdam.

> 2. Final result, with an exclusive grassy area for trams and single-way bike lanes on each side.

Amsterdam, Netherlands GREEN TRAMWAYS: PLANTAGE MIDDENLAAN

A new way of conceiving tramway easements, using grass instead of paving to allow for water infiltration and climatic comfort



Needs

Background

The tramway system plays a key role in Amsterdam's transport network. Started in 1875, the tram network today consists of 14 lines and 95 kilometres of routes.

Historically, tramways have shared their easements with other vehicles in Amsterdam, be it cars or bicycles, even pedestrians on some streets. This means that the ground on which the tram tracks are laid has had to be paved so that other vehicles can use it.

However, restrictions for other vehicles on some short stretches of tram lines has led to a rethinking of the possibilities for the ground along tramway easements.

Challenge

The challenge remains as to how to add value to the vast amount of street space consumed by tram tracks. Until now, sharing this space with other vehicles has been perceived by citizens as more useful.

However, greenery can be incorporated into tramway easements, allowing for water infiltration and facilitating the integration of greenery in the city, thus helping to increase the amount of permeable soil in the city and making it more resilient against floods.

Process

In Amsterdam, building tramway spaces as green spaces can only be achieved where tramway easements are not shared with vehicles. However, a test was deemed necessary to assess the benefits and disadvantages.

Design

The idea was tested on a 130 m-long section of Plantage Middenlaan. Given that this section of the street divides Wertheimpark in two, it is a space particularly well suited to getting rid of cars. To achieve this, the tramway area has been laid with grass, with one-way bike lanes on each side.

Strengths and weaknesses

+ More greenery on the streets.

+ In the case of Plantage Middenlaan, continuity of the green ground between the two parts of the park.

+ Faster tram circulation and greater safety for cyclists, without sharing tracks.

+ Water infiltration.

+ Greater resilience against floods.

- Not easily replicable citywide, as long as the tramways continue to share space with other vehicles.



Outcomes

Impact

- Creation of a charming space in a previously unfriendly area.
- The project has served to open up discussion on how make better use of tramway space.

Lessons learnt

• Tramway infrastructure can easily incorporate greenery.





^ 3-4. Before and after: from a shared space to dedicated areas for trams and bikes.

> 5. Schematic cross-section of greenery between tram rails

Sources: Rainproof.nl Wikipedia.com

Image credit:

- 1. Stamen + AMB 2. CC BY - Rob Dammers
- 3. © Archief Amsterdam
- 4. © Thomas Schlijper
- 5. © Atelier GREEN BLUE

Fostering social inclusion

Scope: Reclaiming the neighbourhood Status: Active campaign Project size: 17 ha Year of completion: 2028

Key actors: Los Angeles river communities for environmental equity, Metrolink.



^ 1. Location of the Los Angeles river as it crosses the affected communities.

> 2. New shared spaces are a result of community action.

Los Angeles, United States LOS ANGELES RIVER COMMUNITIES FOR ENVIRONMENTAL EQUITY

A grassroots initiative to reclaim a polluting train yard facility for the betterment of the neighbourhood.



Needs

Background

Although a train yard has been present next to the Los Angeles river at the Taylor Yard site since 1911, further infrastructure was built in 1992, resulting in an increase in noise and air pollution that affected the neighbouring communities.

The location of the train yard adjacent to the river and its activity also blocked the expansion of green public spaces that had been in development since 2003, such as the Rio de Los Angeles State Park, the first phase of which was completed in 2007.

Inaction and pollution spurred residents to organise an activism campaign to transform the site.

Challenge

The overall aim is the transformation of the river's edge into a one-mile-long greenway to benefit local stakeholders, increasing the river's accessibility while reflecting community input.

In order to achieve this, it is necessary to confront the need for a maintenance facility for trains on the site, which generates concerns about air and noise pollution.

Early improvements were completed in a relatively short time frame. However, conflict arising from train-related activity delayed the continuation of the project while local community involvement pushed for its completion.

Process

Since 2011, a growing volunteer network received support from elected officials for the organisation of grassroots campaigns and events that instilled residents with a sense of belonging towards the river. Actions such as air and noise studies, community clean-ups, slow rides and get-togethers have kept up the pressure to enact change.

Despite ameliorating actions, the train facility is still in operation. However, government action to change the site into a new park based on local input is set for completion by the 2028 Los Angeles Summer Olympics.

Strengths and weaknesses

+ Grassroots activity promotes improvement of local public spaces based on concrete needs.

+ Community-based initiatives can sustain a long-term campaign to achieve its goals.

+ Local stakeholders and government planners can collaborate to develop a widereaching proposal.

- The integration of the public rail infrastructure into the design is hindered by the confrontational approach adopted by the parties concerned.



Outcomes

Impact

- Community initatives spurred a new collective mindset.
- Appreciation of public green spaces and action against pollution resulted in site improvements.
- Development of a long-term plan to transform the site into green embankments.

Lessons learnt

- Grassroots initiatives can lead the way to the transformation of urban spaces.
- Bringing about difficult changes requires compromises and long-term goal setting from the parties involved.
- Government and local association collaboration can further enrich proposals.





- ^ 3-4. Local community and government projects help improve the site area.
- > 5. The rail yard divides the area.

Sources: larcee.org

Image credit: 1. Stamen + AMB 2., 3. LARCEE 4. SPF: Architects 5. LARCEE

Integrating the infrastructure

Scope: Urban regeneration Status: In development Project size: 6km in length Development: 2021 (plan approved)

Key actors: City of Brussels Technical team: Sweco mobility experts D'ici-là landscaping



^ 1. Location of the Herrmann-Debroux project in Brussels.

> 2. A multimodal street is set to replace the E-411 viaduct.

Brussels, Belgium DELTA HERRMANN-DEBROUX: TRANSFORMING ROAD INFRASTUCTURE

The creation of public spaces by dismantling a major road viaduct provides an excuse to strengthen the urbanity of the Brussels city perimeter.



Needs

Background

The urban areas around the Herrmann-Debroux district at the perimeter of the city of Brussels feature a multitude of interesting spaces, such as World Heritage forests, leisure and commercial areas, high-level public institutions and learning centres, and many public spaces and transport hubs.

However, these areas are disconnected by the presence of the E-411 motorway, which cuts across them, acting as a physical and visual barrier and causing the district to lack a cohesive urban relationship.

Challenge

The primary goal is to remove the ever-present E-411 motorway viaduct and so strengthen urban relations within the district and the city as a whole. To achieve this, the government of Brussels made a call for proposals for a large-scale Master Development Plan (MDP) to transform these spaces in several stages.

The transformation of the expressway must also lead to an urban intensification of the surroundings, both in housing and office areas.

Design

The current proposal aims to dismantle the E-411 viaduct and transform the trace of the road into an urban boulevard. Cohesion is achieved as the mix of uses and the multimodal character of transport in the district are enhanced. Public spaces and landscape are improved and entrusted with connecting diverse urban spaces, tying the neighbourhood together.

Process

Changes are introduced into the design as the project evolves and matures, such as those incorporated as a result of public consultation (2019).

Strengths and weaknesses

+ The project identifies the potential of peripheral assets and proposes their connection.

+ Multimodal focus and peoplecentred approach.

+ Detailed assessment on the background situation, leading to a more precise diagnosis.

+ The project involves a large area and a multiplicity of actors.

- The lack of a centralised entity to manage all partners led to delays in implementation of the project.





^ 3-4. New developments aim to re-connect areas split by infrastructure.

> 5. The E-411 is an inescapable sight In the Hermann-Debroux district.

Outcomes

Impact

- The execution of the largest and most complex MDP plan in the city of Brussels.
- Recontextualisation of the perimeter of the urban fabric as a place to invest in.
- Connection with the metro network.

Lessons learnt

- A solid background analysis leads to a more thorough proposal.
- The inherent complexity of any proposal to reclaim largescale infrastructure makes interdisciplinary teams a necessity.

Sources: perspective.brussels/fr/ projets/poles-strategiques/ delta-herrmann-debroux

Image credit: 1. Stamen + AMB 2.,3.,4.,5. perspective.brussels/ORG

Integrating the infrastructure

Scope: University campus Status: In construction Project size: 118 ha Year of completion: 2019 (partial)

Key actors: Communauté métropolitaine de Montréal Université de Montréal Ville de Montréal



^ 1. Location of the project in Montreal.

> 2. Current state of the campus and public spaces

Montréal, Canada MIL MONTRÉAL-OUTREMONT: FROM RAILROAD YARD TO MIXED DISTRICT

A collaboration between university and government to create a thriving, heterogeneous social environment along railway lines



Needs

Background

The city of Montreal, in Quebec, needed to regenerate a key area located at the centre of the city, previously employed as a railway yard.

As part of the "Plan de développement urbain, économique et social" (PDUES), under implementation since 2013, the initial site was expanded with new sectors to become a new centrality focused on the "City of Knowledge" concept. Through collaboration with the University of Montreal, a new campus became the focus of new innovative and sustainable urban practices which resulted in the improvement of the surrounding communities.

Challenge

The challenge consisted in rethinking a site previously occupied by a railyard between two main rail lines, with the aim of integrating it into the urban fabric.

The scope of the project foresaw the creation of a new neighbourhood and a new university campus, as well as including diverse uses and public spaces.

Connecting the area to surrounding communities is also one of the key issues. Mobility was seen as an opportunity to unify these different spaces through cycling, pedestrian streets, car sharing and other types of active mobility, as well as connecting them to the city's metro system

Design

The project shifted one of the rail lines, joining it to the other. This avoided the fragmentation caused by the two lines and reclaimed the space in between, unlocking urban development.

The placement of different uses has also been strategic: the main anchor use, the university campus, is placed next to the rail tracks to facilitate connection between the two sides, leading directly to a metro station.

The development creates a new university campus serving 10,000 students and a neighbourhood of 1,300 housing units.

Strengths and weaknesses

+ Implementation of integrated urban plans at city and regional levels.

+ Multi-scale approach to infrastructure, from metropolitan rail to cycle paths.

+ Reactivation of a central space in the city.

- The large scale and functional divisions of the project point to a potential lack of diversity.





^ 3-4. Before and after: from a railroad yard to public spaces.

> 5. Local streets were improved to integrate new mobility needs.

Sources: montreal.ca/articles/ mil-montreal-19306

- Image credit: 1. Stamen + AMB 2. Steve Montpetit
- 3. Communauté métropolitaine de Montréal
- 4. Université de Montréal
- 5. Vicenzo D'Alto



Outcomes

Impact

• The project regenerates an "infrastructural wasteland" at the core of the city.

- Creation of added value uses such as research and learning.
- The project made a larger impact by becoming part of an integrated urban plan.

Lessons learnt

- Integrated urban planning at different levels (regional, local) allows for a multi-scale, multi-use approach.
- Anchor uses (in this case, a university campus) activate and improve surrounding spaces.

Reorganising how we move

Scope: Neighbourhood traffic calming Status: Built Project size: 7 ha Completion year: 2003

Key actors: Manchester City Council Manchester Methodist Housing Association Northmoor Steering Group



^ 1. Location of the project in Manchester.

> 2. Resulting layout of the public realm.

Manchester, United Kingdom NORTHMOOR HOME ZONE

A traffic-calming and public space intervention, aimed at reclaiming car space for residents and rejuvenate a previously run-down area



Needs

Background

Northmoor is a residential area five kilometres south of Manchester City Centre. Built in the early 20th century, it is characterised by its streets of terraced houses up to 160 metres long.

In the 1990s, Northmoor was a run-down area with a disenfranchised community. The public realm, with its boarded-up properties and lack of proper lighting, attracted crime and deterred local retail, while the neighbourhood's streets were used as a bypass by through traffic, with speeding cars making the area unsafe and more congested.

Challenge

The main challenge was to reclaim the space for local residents. ensuring that cars and pedestrians could share the streets and residents could enjoy a flexible space able to adapt to their needs. In addition to providing play-grounds for kids, the project needed to promote the safety of the area, not only in terms of traffic, but also by offering safe paths and better connections between streets and spaces. There was an overriding need, therefore, to restore both the physical quality of the neighbourhood and a sense of belonging to its residents.

Process

The process was led in a collaborative initiative between Manchester City Council and private homeowner companies, with the participation of neighbours and local associations. Prior to the execution of the works, a one-day closure was made to showcase the future changes.

Design

The streets were repaved on a single level, with a dwindling path to oblige cars to reduce their speed. A number of houses were also demolished to create new passageways between streets and reduce the length of the façade.

Strengths and weaknesses

- + Cost-effective intervention: £ 800.000 (approx. € 1.25m)
- + Surgical intervention in buildings
- + New vegetation incorporated
- + Low car ownership in the neighbourhood facilitated reduction of parking spaces
- No strategy against gentrification.





^ 3–4. Before and after: from car space to pedestrian space.

> 5. Pop-up event to test the intervention prior to construction.



Outcomes

Impact

- Greater safety, use of public space and sense of belonging.
- Increase in housing prices and change in resident profile.
- Although not directly related, after construction started the UK Government allocated £30m for new "home zones".

Lessons learnt

- Simple, cost-effective interventions can have a great impact.
- Different modes and uses can coexist in a street as long as speed is reduced to ensure safety.
- Projects need to take social side effects into account to avoid resident displacement.

Sources: Publicspace.org

Image credit: 1. Stamen + AMB 2. Northmoor Community Association 3.,4.,5. Publicspace.org

Planning the metropolis

Scope: Infrastructure optimisation Status: In development Project size: 79 ha Development: ongoing since 2014

Key actors: City of Hamburg Billebogen development initiative Urban Development and Housing Authority



^ 1. Location of the project in Hamburg.

> 2. Proposed urban fabric along re-imagined infrastructure, with the Elbtower in the foreground.

Hamburg, Germany STADTEINGANG ELBBRÜCKEN: URBAN FABRIC AROUND AN INTERCHANGE

Repurposing an interchange into a sustainable gateway into the city through new public spaces and diverse urban fabrics



Needs

Background

The city of Hamburg has been pushing for the urban renewal of old dockyards and warehouses along the Elbe river. The municipality is keen to continue this process, and is targeting an area that borders the successful HafenCity initiative as a next step.

At the confluence of the Elbe and Bille rivers, an oversized major road intersection and its inherent noise prevent the site from reaching its potential as an urban gateway to these new districts and Hamburg as a whole.

The area is located along the riverfront, where twin bridges unite the two sides of the river leading towards the city centre and connect it to the old industrial landscape now ready to be transformed.

Challenge

The project intends to create a more urban environment by integrating or removing road and rail infrastructures and optimising their size to meet current standards.

Of particular interest is the cloverleaf intersection at the centre of the site, removal of which would unlock the necessary space to develop the spaces proposed.

Through development of the spaces, the goal is to achieve a diverse set of uses within the proposed fabric, following proper noise management procedures to enable the location of housing in the quietest areas.

Process

Though the project is being developed by a consortium of public and private enterprises, a participatory process involving stakeholders, primarily at a district scale, has been held since 2015.

Design

The design focuses on "quietening down" the major road to enable the activation of the new urban sector. The project will feature sustainable mobility connections to the neighbouring districts, especially along the canals. Services and housing will be built around the redesigned intersection.

Strengths and weaknesses

+ A long-term, methodical and persistent urban renewal strategy enabled through public-private partnership.

+ Focus on over-reaching urban connections and shifting to active mobility.

+ Activation of unused spaces occupied by oversized car infrastructure.

- Although roads have been integrated, the new neighbourhood is still surrounded by rail tracks (though no stations serve the area) which separate it from surrounding communities.





^ 3-4. Outdated mobility infrastructure to be improved as sustainable options take a more active role.

> 5. Area of intervention (including the Billebogen site to the north-east), with the cloverleaf intersection at its centre.

Sources: billebogen.de/en/ stadteingang-elbbrucken-en/

- Image credit:
- 1. Stamen + AMB
- 2. Hager
- 3. Stadtteilarchiv Hamm 4. Büro Luchterhandt
- 5. Fotofrizz/BBEG



Outcomes

Impact

- An optimised junction allows a dense urban fabric to be developed in a recontextualised site.
- The project approaches the city towards the bank of the Elbe river, opening up the possibility of expanding the city on the other side of the river, where it is currently mainly industrial.

Lessons learnt

- Public-private partnerships are able to renew large sectors of a city following a bold urban plan.
- Questioning the need for obsolete infrastructures can lead to opportunities for city improvement.

Adding ecosystem functions

Scope: Parks

Status: Executed + in progress Project size: 24 parks, 300 to 8800 m2 each Year of completion: 2019

Key actors: Krakow Municipal Greenspace Authority



^ 1. Parks along the Krakow municipality.

> 2. All parks have new trees, flowers and recreational areas.

Kraków, Poland KRAKÓW POCKET PARKS – OGRODY KRAKÓWIAN

Reactivation of abandoned spaces in Kraków has led to a network of pocket parks, providing proximity green spaces and improving the public realm



Needs

Background

Outside the city centre, Kraków's urban fabric is mostly block-type or detached housing. As a result, there are plenty of open spaces, either between buildings or in undeveloped land around road crossings.

However, this abundance of open spaces does not equate to well-equipped parks for use by residents, and most Kraków residents still lack a park in the vicinity of their homes.

Challenge

The challenge is to bring these abandoned spaces back to life and repurpose them for the use and enjoyment of residents, while simultaneously creating new habitats for plants and animals to increase biodiversity.

The overall aim of the project is to convert residential neighbourhoods into more liveable spaces, where pedestrian mobility is more present and the public space addresses all citizens, from children to older people.

Process

Each pocket park has a theme, which is determined by residents through public consultation. The idea is to create a sense of belonging, so that local residents respond to the park as if it were their own garden, and therefore take good care of it.

Design

The parks are very different in size (from 300 to 8,000 m2), but they all include more trees and flowers, and different kinds of gathering spaces: from picnic tables and swings to outdoor gyms and educational signage.

Strengths and weaknesses

- + Rejuvenation of urban voids.
- + Creation of proximity green space.
- + Consultation with residents.
- + Themed parks, providing the spaces with a sense of identity.





^ 3-4. Before and after: radical transformation of urban voids.

> 5. Top-down view of the resulting parks



Outcomes

Impact

- Pocket parks have become a recognisable element of pride for Cracovians.
- The impact is evenly distributed across all Kraków districts.

Lessons learnt

• Small investments, when effectively communicated and distributed, can have a broad impact.

Sources: adapterraawards.cz zzm.krakow.pl

Image credit: 1. Ogrody Krakowian 2.-5. Zarząd Zieleni Miejskiej w Krakowie

Adding ecosystem functions

Scope: Rail yard naturalisation Status: Built Project size: 40+10+2 ha (3 phases) Year of completion: 2011, 2013 and 2014

Key actors: City of Berlin, Federal-LandBerlin, Grün Berlin GmbH, Atelier LOIDL.



^ 1. Location of the park within Berlin

> 2. A lush park co-exists with public transportation infrastructure.

Berlin, Germany PARK AM GLEISDREIECK: A BOLD GREEN PARK CROSSED BY RAILWAY TRACKS

Reclaiming of old rail yards is resolved by unfurling a green carpet that interacts with both functioning and abandoned infrastructure



Needs

Background

Following the dismantling of the Potsdamer and Anhalter stations in 1945, destroyed in World War II, the vast plot of land which is the Park am Gleisdreieck was abandoned, becoming an enclave of the Reichsbahn eastern train company within West Berlin.

However, after the unification of Germany in 1990 and the dissolution of the political divide, trains could freely cross into the city. This transformed the rail infrastructure from one of terminal hubs on the verge of the centre to a nodal scheme, removing the need for maintenance yards within the urban fabric.

Challenge

The objective of the project was for the conversion of the area into an ecosystem "break" for the city. This involved working around the operational railways and considering which elements could remain as "leftovers", now seen as historical relics.

The transformation of such a large surface posed further challenges: despite being split into areas and phases of construction, a common strategy was needed to create a cohesive identity for the park.
Design

Taking advantage of the size of the park, the design proposes a varied landscape, contrasting wilder and more controlled environments, generating diverse scenery.

Train infrastructure is accepted and celebrated, as convoys cross bridges over the park's greenery, and leftover railways have now become paths for the enjoyment of citizens.

Pre-existing structures have been tamed and adapted to the park's surface, and the rail yard has become a new green lung for Berlin.

Strengths and weaknesses

+ Infrastructure at the forefront: the park obtains a unique identity by integrating the rail tracks into its design.

+ Contrasting green spaces create a diverse environment within the park.

- The park's perimeter does not relate to the urban fabric on its sides, acting more as a "buffer" between the city and nearby undeveloped spaces.

- The monofunctionality of the park somewhat restricts its potential as an active space.





^ 3-4. Pre-existing infrastructure is part of the design.

> 5. A vast swathe of green replaces the old train terminus.



Image credit: 1. Stamen + AMB 2., 3., 4., 5.Atelier LOIDL



Outcomes

Impact

- A large-scale green surface intersperses the city's dense mesh with recreational spaces.
- The design is a blend of different landscapes in which rail infrastructure is accommodated.

Lessons learnt

- Despite its varied character as a park, a mixed-use approach might have increased its integration into the city.
- The preservation of railways and forested areas combined with new vegetation is an effective way to generate new landscapes.

Enclosed infrastructure

Fostering social inclusion

Scope: Integrated planning Status: Project approved Project size: 445 ha Year of approval: 2016

Key actors: NYC Department of City Planning US Department of Housing and Urban Development



^ 1. Location of the project in New York City.

> 2. Redevelopment of public realm in Atlantic Avenue.

Brooklyn, New York City, United States EAST NEW YORK NEIGHBOURHOOD PLAN AND ATLANTIC AVENUE

An integrated approach to transit-oriented urban development, allowing to redensify an existing neighbourhood while tackling social issues



Needs

Background

East New York is a low-density, low-income neighbourhood in Brooklyn, New York. However, the area is well served by public transport, with several subway lines and the Long Island Railroad commuter line running through the area.

This mix of transport allowed the area to apply for a "Sustainable Communities" federal grant to increase density around regional transit corridors. The grant was used to redevelop Atlantic Avenue, an eight-lane street that is the backbone of the neighbourhood.

Challenge

The grant opened up a process to revitalise East New York that needed to respond to both local and regional needs. To do so, the project needed to have significant public outreach.

Community consultation was employed to identify the main needs of the neighbourhood: more housing options, more stores and services, more pedestrian safety along Atlantic Avenue, more jobs and greater consideration of sustainability.

Process

The outreach process was performed in three phases: visioning, report back and draft plan presentations. This led to a review of the zoning in the area for the densification of the main avenues. Instead of three-storey buildings, the planning proposed 6to 14-storey buildings, depending on the width of the avenues.

At the same time, different actions were proposed across four main topics – affordable housing, economic development, transport and public realm, and community services – requiring considerable coordination between departments.

Strengths and weaknesses

+ Regional and local visions taken into account.

+ Integrated planning, ranging from planning to social aspects.

+ Community outreach and accountability.

+ Coordination between several departments.

- No clear mechanisms to prevent gentrification.



PRESERVE RESIDENTIAL CHARACTER OF CORE BLOCKS

Outcomes

Impact

- 1,200 new housing units in the first two years, and a total of 3,500 in fifteen years.
- Expected impact of 250 new companies and 4,000 new jobs.

• New or renewed public facilities, such as the City Line Park and the NYPD Community Centre.

Lessons learnt

- Urban development should respond to a metropolitan as well as a local scale.
- Planning must take social issues into account.





^ 3-4. Renderings of denser, more active buildings that will retrofit the neighbourhood.

> 5. Density limits vary according to the street.

Sources: NYC Department of City Planning

Image credit: 1. Stamen + AMB 2.-5. NYC Department of City Planning

Reorganising how we move

Scope: Commuter train service Status: Implemented Completion year: 2016

Key actors: PKP Polish State Railways



^ 1. Route map in the Gdansk-Gdynia-Sopot metropolis.

> 2. New elevated station connecting train, bus and tram services in Gdańsk Strzyża, with the characteristic red roof of new stations.

Gdansk-Gdynia-Sopot, Poland SKM - INVESTMENT PLAN IN COMMUTER TRAIN SERVICE

More routes, more stations and better trains to increase ridership and connect with new urban developments and transport hubs



Needs

Background

The Szybka Kolej Miejska (SKM) railway transportation system between the cities of Gdańsk, Gdynia and Sopot was created in the 1950s, beginning with a short line between the ports of Gdańsk and Nowy that was gradually extended to Sopot and Gdynia.

Despite electrification efforts, the number of passengers declined continually after 1970, falling from 100 million trips to only 40 million trips in 1990. Following management changes in the early 2000s, an investment plan was approved in 2008.

Challenge

The challenge was to modernise the SKM system to enable It to offer a fast and reliable service to the Gdańsk-Gdynia-Sopot metropolis.

Design

The investment plan was conceived with a multi-faceted spirit and aimed to act on many fronts. It has created new lines and stations, providing access to developing areas and encouraging connections with other transport systems such as the airport and bus stations.

Investment has also encouraged the modernisation of stations and rolling stocks to improve the commuter experience.

Strengths and weaknesses

+ Improved accessibility to the airport and creation of several intermodal nodes.

+ Creation of stations around new urban developments.





 ^ 3-4. Before and after: new station and related development in Gdańsk Śródmieście.

> 5. New rolling stock in the Gdańsk main train station.

Sources: pl.wikipedia.org

Image credit: 1. Stamen + AMB 2. Jerzy Pinkas/gdansk.pl 3.,4. Google Earth 5. CC BY-SA RunawayTrain



Outcomes

Impact

- Increase in ridership, from 39 million in 2007 to 43 million in 2019.
- Intermodal connections and new development around stations.

Lessons learnt

- Investments are needed to make public transport enduringly attractive to the public.
- New urban developments must have public transit connections from the outset.

Reorganising how we move

Scope: Critical mass cycling scheme Status: Active Project size: 33 municipalities (last edition) Active period: 2014-present

Key actors: City of Gdansk, Cycling May initiative Local adherents



^ 1. Cities that took part in the scheme in 2022

> 2. Cycling as an alternative to private vehicles can lead to healthier habits.

Gdańsk and adhered cities, Poland CYCLING MAY – A MONTHLY PROMOTION OF CYCLING TO SCHOOL

A scheme that aims to establish healthy cycling commuting habits among school children and their parents, targeting short-distance daily trips



Needs

Background

At the launch of the project in 2014, cycling was the preferred mode of transport for 7% of Polish people (similar to the EU average of 8%).

To improve these figures in particular, and with the overall aim of promoting more sustainable mobility, a series of bike-sharing and "critical mass" schemes have recently been developed to target short car journeys.

Conditions in the city of Gdańsk – gentle topography, good infrastructure and a mild climate in spring and summer – favour a cycling culture and have helped the city in the launch of this initiative.

Challenge

The aim of the "Cycling May" event is to encourage children to travel to school by bike during the month of May. The idea is to promote a sustainable alternative to school commuting by car, and encourage children to establish healthy mobility habits at an early age.

The success of the initiative relies on active efforts made by all stakeholders: parents, pre-schools and primary schools taking part in the scheme, as well as the city administration.

The chief goal, however, is to engage students between 3 and 15 years of age, encouraging them to adopt habits that favour sustainable modes of mobility.

Process

Cities agreeing to take part in the scheme receive supporting material at no cost. In return, they are required to oversee the schools that enrol in the programme.

Schools implement the scheme, establishing a student participation reporting system and distributing promotional material. Regardless of the school's degree of adherence to the programme, grassroots initiatives linked to this movement are actively promoted as parents and children are asked to try out a healthier way to commute to school during the month of May.

Strengths and weaknesses

+ Promotion of healthy habits at a young age can lead to a more sustainability-aware population.

+ The scheme is easy to implement and scheduled at a time of year when the weather Is favourable for cycling, thus achieving high adherence rates.

+ Indirect promotion of investment in cycling infrastructure.

- Reliance on self-adherence means that schools can opt out, and the scheme could easily fizzle out if critical mass is not achieved.

- Disruptive events such as COVID-19 have a severe impact on associative projects.





^ 3-4. Rewards and supportive materials are given to students engaging in sustainable mobility commutes.

> 5. Children aged 3-15 are asked to participate in "Cycling May".

Sources:

rowerowymaj.eu/ Biernat, E.; Buchholtz, S.; Bartkiewicz, P. Motivations and barriers to bicycle commuting: Lessons from Poland. *Transp. Res. Part F. Traffic Psychol. Behav.* 2018

Image credit: 1. Stamen + AMB 2.,3.,4.,5. Cycling May initiative



Outcomes

Impact

- Over 33 municipalities and 511 schools participated in the last edition of the event, which involved 78,317 participants, including students and other volunteers.
- Substantial improvements in cycling infrastructure.

Lessons learnt

- Ease of implementation and gain of autonomy have expedited the growth of the project.
- Time-limited events can have a long-lasting effect, by triggering positive change in year-round commuting habits as well as advocating for the benefits of active mobility.



urbact.eu/riconnect