

Routledge Studies in Urbanism and the City

URBAN SUSTAINABILITY IN THE MAKING

**AALBORG'S TRANSFORMATION PROJECTS,
PROCESSES AND REFLEXIVE PRACTICES**

Enza Lissandrello and Alessandra Badami



Urban Sustainability in the Making

This book explores how urban sustainability is negotiated and enacted through planning practices, narratives, and institutional change. It does so through the case of Aalborg, to illustrate transitions that are shaped by urgency, legitimation and implementation.

It offers a theoretically grounded and empirically nuanced account of how urban sustainability emerges through situated, negotiated, and contested processes of transition. The book provides critical insight into the governance arrangements, planning rationalities, and institutional innovations that shape sustainability in practice, with the city of Aalborg serving as a paradigmatic case. Drawing on four intersecting theoretical traditions – Urban Political Ecology, Just Sustainability, Phronetic Planning, and Urban Sustainability Governance – the book develops the *Urban Sustainability Compass*, an interpretive framework organised around the logics of urgency, legitimation, and implementation. Through longitudinal analysis, engagement with planning documents, and sustained collaboration with municipal practitioners, the book delivers conceptual depth and methodological guidance for scholars, planners, and policymakers aiming to understand and co-produce context-sensitive, just, and adaptive pathways towards sustainable urban futures.

This book is intended for scholars, advanced graduate students, and critically engaged practitioners in the fields of urban planning, sustainability studies, human geography, and environmental governance. It will be of particular interest to those conducting research on urban transitions, planning theory, climate adaptation, and socio-ecological transformation. The volume is especially suited for postgraduate courses and seminars on sustainable urban development, strategic spatial planning, and critical approaches to environmental policy, governance, and justice.

Enza Lissandrello is an Associate Professor at Aalborg University, Department of Sustainability and Planning, and a member of the Planning for Urban Sustainability (PLUS) research group. Her research explores the intersections of planning theory, governance, and participatory approaches to sustainable urban development, focusing on power, reflexivity, and socio-technical and socio-ecological transitions. She integrates feminist theories of performativity,

interpretive policy analysis, and innovative participatory methods such as gamification and co-creation. Recent work includes co-editing of *The New Normal in Planning, Governance and Participation* (Springer, 2023), she has extensive international experience in Italy, the Netherlands, Denmark, and France. Enza currently serves as Chair of the Urban Europe Research Alliance (UERA), advancing global collaboration on sustainable and climate-neutral cities.

Alessandra Badami is a Full Professor of Urban Design at the University of Palermo, Department of Architecture. Her research combines theoretical and applied perspectives on sustainable urban development, with expertise in urban regeneration, cultural landscape management, and innovative design methodologies. She has advised regional and municipal administrations on urban and regional planning and contributes to advancing experimental approaches to urban image management, such as the Colour Plan of the Egadi Islands. Her recent publications address post-earthquake reconstruction in Gibellina, sustainable urban regeneration in Aalborg, and the management of historical agricultural landscapes in the Sicilian Anthropocene, linking heritage conservation with contemporary urban challenges.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Routledge Studies in Urbanism and the City

Urban Marginality, Racialisation, Interdependence

Learning from Eastern Europe

Edited by Filip Alexandrescu, Ryan Powell and Ana Vilenica

City Re-construction

Urban Policy Innovation Towards Sustainable Cities in MENA Region

Edited by Ali A. Alraouf, Odeh Al-Jayyousi, and Kheir Al-Kodmany

Hybrid Urbanisms in Secondary Cities of the Global South

Insights in urban planning and infrastructure delivery in Ghana and Peru

Edited by Christian Rosen and Nina Gribat

Cities: Inclusive, Liveable, and Sustainable

Edited by Ashish Kumar Srivastava and Iva Ashish Srivastava

Queerburbia: LGBTQ2S suburban place-making

Alison Bain and Julie Podmore

Building the City

Everyday Lives of Migrant Workers

Mark Jayne, Wu Siying and Wu Chenhui

Aesthetics and the City

Edited by Joe Blakey and Amy Barron

Urban Sustainability in the Making

Aalborg's Transformation Projects, Processes and Reflexive Practices

Enza Lissandrello and Alessandra Badami

Urban Sustainability in the Making

**Aalborg's Transformation Projects, Processes
and Reflexive Practices**

Enza Lissandrello and Alessandra Badami



Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2026
by Routledge
4 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
605 Third Avenue, New York, NY 10158

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 2026 Enza Lissandrello and Alessandra Badami

The right of Enza Lissandrello and Alessandra Badami to be identified as authors of this work has been asserted in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

The Open Access version of this book, available at www.taylorfrancis.com, has been made available under a Creative Commons Attribution-Non Commercial-No Derivatives (CC-BY-NC-ND) 4.0 International license.

For Product Safety Concerns and Information please contact our EU representative GPSR@taylorandfrancis.com. Taylor & Francis Verlag GmbH, Kaufingerstraße 24, 80331 München, Germany.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-1-041-02025-7 (hbk)

ISBN: 978-1-041-02026-4 (pbk)

ISBN: 978-1-003-61740-2 (ebk)

DOI: 10.4324/9781003617402

Contents

<i>List of Figures</i>	<i>ix</i>
<i>List of Tables</i>	<i>xi</i>
<i>List of Boxes</i>	<i>xii</i>
<i>Acknowledgements</i>	<i>xiii</i>
<i>Foreword by Anne Juel Andersen</i>	<i>xiv</i>
Introduction: Rethinking Urban Sustainability – Situated Practices and Everyday Transitions	1
ENZA LISSANDRELLO AND ALESSANDRA BADAMI	
1 The Urban Sustainability Compass	7
ENZA LISSANDRELLO	
2 Aalborg in Transition: Historical Pathways to Sustainability	29
ENZA LISSANDRELLO	
3 Strategic Planning for Urban Sustainability. The Aalborg Turn	50
ENZA LISSANDRELLO	
4 Urban Identity Transformation: The Aalborg Waterfront	85
ENZA LISSANDRELLO AND ALESSANDRA BADAMI	
5 Nørresundby Waterfronts: A Multifunctional and Ecologically Integrated Urban Environment	131
ALESSANDRA BADAMI	
6 Green Infrastructures and Ecological Design	165
ALESSANDRA BADAMI	

viii *Contents*

7	Mobility as a Catalyst for Sustainable Urban Transformation	199
	ENZA LISSANDRELLO	
8	Conclusion: Why Aalborg Still Matters? Urban Sustainability in the Making	232
	ENZA LISSANDRELLO AND ALESSANDRA BADAMI	
	<i>Index</i>	246

Figures

0.1	Aalborg City Plan	4
1.1	The Urban Sustainability Compass	14
1.2	Drivers of Urban Sustainability in Aalborg	19
2.1	Aalborg City Map	33
3.1	Fjordkatalog	58
3.2	The Growth Axis and its Public Transport Backbone	63
3.3	Sustainability Flower Process	64
3.4	The Urban Sustainability Compass applied to Aalborg's Strategic Sustainability	74
4.1	Vestre Havnepromenade	91
4.2	Ø-Gadekvarteret	94
4.3	Jomfru Ane Parken	97
4.4	Tolbod Plads	99
4.5	Utzonparken	101
4.6	Nordkraft	102
4.7	Musikkens Hus	106
4.8	Create Campus	108
4.9	(a) Østre Havn. (b) The flower of sustainability developed for the Østre Havn project	111
4.10	Vestre Fjordpark	116
4.11	Aerial Rendering of the Future Spritten District in Aalborg	122
4.12	The Urban Sustainability Compass of Aalborg's Waterfront	126
5.1	Lindholm Strandpark. In the background, the Dansk Andels Cementfabrik Silo Converted into Apartments with the Addition of a Twin Silo	136
5.2	Lindholm Brygge. Integration Project of the Katedralen Building in the Middle of Two New Residential and Hotel Complexes Planned by Lokalplan 1-2-103	141
5.3	Nørresundby Havnefront	146
5.4	Urban Redevelopment Plan of The Former Industrial District of Danish Crown	147
5.5	View from the Sea of the Nordhavn District	151

5.6	Urban Redevelopment Plan of the Former Industrial District of Stigsborg	153
5.7	The Sustainability in the Making Compass Adapted to Nørresundby's Waterfront	162
6.1	Aalborg, 1900. <i>Kort over købstaden</i> (market town map) drawn by V.F.A. Berggreen (18.3.1833-21.12.1913)	169
6.2	View of the Restored Terminal Section of the Østerå River	172
6.3	Redevelopment Project for Karolinelund Park	175
6.4	Flood Management Scheme for the Godsbanearaalet Sector	179
6.5	Water Retention Basins in Godsbanearaalet	180
6.6	The Østerå River Seen from the Gabriel Sector	181
6.7	Silo Decorated with a Mural by Guido Van Helten in the Eternitten District	185
6.8	Budolfi Plads	190
6.9	Urban Sustainability Compass on Urban Ecology Projects in Aalborg	192
7.1	The +BUS System in Aalborg at Nytorv	207
7.2	Kennedy Plads	212
7.3	Kulturbroen	213
7.4	(a) Location of the Kildeparken district in the eastern part of Aalborg East. (b) Kildeparken Redevelopment Project	217
7.5	The Urban Sustainability Compass Applied to Sustainable Mobility in Aalborg	226
8.1	The Urban Sustainability Compass in Aalborg	237
8.2	View of Aalborg	244

Tables

1.1	Interpretive Logics, Theoretical Perspectives, and Narratives of Urban Sustainability	13
1.2	Mapping Aalborg's Scholarly Narratives through the Compass Framework	17
2.1	The <i>Urban Sustainability Compass</i> Applied to Aalborg's Transformation	45
3.1	Aalborg's Strategic Planning Roadmap and Emerging Sustainability Narratives	77
3.2	Aalborg's Urban Sustainability Strategies: Logics, Frameworks, and Governance Shifts	78
4.1	Timeframe of Major Projects and Processes in Aalborg's Urban Transformation	124
5.1	Nørresundby Waterfront Projects and the Sustainability in the Making Compass	160
6.1	The Urban Sustainability Compass of Green Infrastructures and Urban Ecological Design in Aalborg	194
7.1	Mobilities and the Theoretical Perspectives of the Urban Sustainability Compass	202
7.2	Timeline of Key Sustainable Mobility Projects in Aalborg	223
8.1	Chapters, Themes, and Orientations of Urban Sustainability in Aalborg	238

Boxes

3.1	The Evolution of Denmark's Planning System	60
3.2	The Aalborg Charter: Local Action for Global Sustainability	71
3.3	The Aalborg Commitments: From Vision to Action	72
3.4	The SDGs: A Global Framework for Local Sustainability	72
3.5	The Aalborg Conditions: Toward a Just and Cohesive Urban Transition	74
4.1	Four Subzones of the Spritten Redevelopment	117
4.2	Façade Systems and Public Space Interaction	119
4.3	Kantzoner ("edge zones"): Transitional Zones Between Buildings and Public Space	120
5.1	The Grundejerforening	139

Acknowledgements

Product created with funds from the University of Palermo (Measure C, 2024-2026), Research Financing Funds of the University of Palermo (FFR - 2025) and Operating Funds of the Department of Architecture of the University of Palermo (FFO - Departmental Strategic Budget 2025). Part of Enza Lissandrello's research in this publication was funded by the NordForsk call for sustainable urban development and smart cities, focusing on Nordic participatory, healthy, and people-centred cities (Project Number 95326).

The technical documentation related to urban and regional planning documents has been sourced from the official portal Plandata.dk.

The cartographic data for the graphic elaborations have been sourced from the official portal Dataforsyningen.dk.

Foreword

*Anne Juel Andersen*¹

This book deals with the development of urban planning over the past 30 years. Aalborg in Denmark is used as a case study, which means that there are some quite detailed descriptions of Aalborg's significant transformation processes since the 1990s. This corresponds precisely to the period during which I have been a part of and followed the changes closely, as I have been working as an architect and planner in Aalborg Municipality since 1996.

The two authors, Enza Lissandrello from Aalborg University in Denmark and Alessandra Badami from the University of Palermo in Italy, have both engaged extensively with Aalborg in various ways. However, they also have a lot in common: they are both Italian and have broad international experience, which means they view Aalborg from 'the outside', rather than from a classical Nordic perspective and planning culture. I have had long-standing contact with both authors, as they, as researchers and educators, have been curious about Aalborg's projects and processes – about how Aalborg has approached the extensive planning in connection with urban development and urban transformation. I participated in Enza's classes at Aalborg University with lectures about Aalborg's overall planning strategy and specific projects directed towards sustainability in planning and urban transformation. This collaboration has led to important reflections and discussions.

On a personal note, I grew up in Aalborg but graduated from the School of Architecture in Aarhus in 1986 as an architect and urban planner, and I have been working in the field – and in Aalborg – for 39 years. After 8 years as a private urban planning consultant focusing mainly on urban renewal, I moved to Aalborg Municipality in 1996, where the focus of my work shifted from urban renewal and citizen involvement in the late 1990s to port transformation and large redevelopment projects, and later again to strategies for urban development and sustainability. From 2010 to 2013, I did a professional PhD at the Department of Architecture and Design at Aalborg University, where I dealt with the theoretical, practical, and planning aspects of urban projects in the thesis 'Urban Projects – between place discourse and planning, tools in strategic urban transformation'.

1 Architect, PhD – Strategy Team Leader, Aalborg Municipality.

I have, therefore, been engaged in strategic urban transformation since my study years and have followed various trends and changing societal and economic conditions. The driving force for me has always been to understand places, how they are shaped through historical processes, and to work with the driving forces that are needed to change them for the better. Often, the purpose is to improve the existing worn-out/obsolete city with something qualitatively better for the people who live there, both in terms of functions that better align with today's needs and improvements to the architecture of our physical surroundings. Frameworks and legislation are continuously changing, but the aim has always been to seek solutions that point in the right direction based on visions and strategies with political ownership, from the opportunities that arise and with citizen involvement. It is very much about working in a network-orientated way with interest and respect for the many stakeholders and their different agendas. Thus, in my past, I have delved deeply into the topics discussed in this book.

Aalborg has been an exciting place to work as an urban planner for the past 30 years. The city has undergone a huge transformation from a rather heavy industrial city to a modern knowledge-based city characterised by culture and leisure. The city's development has been greatly influenced by the university, which has also grown significantly during this period. The university was established in 1974 as a modern university with the aim of connecting with the business community in North Jutland through problem-orientated project studies – a principle that still holds true today. The university has about 20,000 students and has distinguished itself with the title of 'best engineering university in Europe' several times, according to the Best Global Universities ranking. Parallel to the growth of the university in the 2010s, there was a corresponding significant increase in the municipality's – and the city's – population, leading to an increase in the need for housing, which was met through a massive transformation of former industrial areas for urban purposes such as housing and businesses. This included the construction of over 5,000 student apartments with municipal support between 2010 and 2017. In 2024, of the approximately 33,000 housing units owned by housing associations (non-profit and publicly funded), about 6,500 were student apartments. The structure of business has completely changed during this time, from an industrial city with polluting industries located centrally in the city to one characterised by a higher level of education and where education, health, culture, and services play a much larger role. The business structure is defined by a strong focus on green transition and innovation. The role of industry is still significant but is increasingly influenced by green technology, including energy and Carbon Capture Utilisation and Storage (CCUS), as well as more climate-friendly production. This development has taken place in close collaboration between the companies and Aalborg University and other knowledge institutions.

Urban development and transformation have been important topics in urban planning for the past 30 years. The transformation of the urban harbour areas has been planned and implemented both north and south of the fjord.

Today, only one industrial area remains on the waterfront, P.P. Hedegaard, which is a grain and feedstuff production company at Nørresundby, but this area will also come into focus in a few years. Large industrial areas within the city and away from the coastline have also been transformed, including 'Eternitten', a fibre cement sheet roofing factory, and 'Godsbanearealet', the old freight area, while 'Sygehus Nord', the old central hospital is in the process of being relocated, which will transform large parts of the hospital complex for urban purposes such as housing, business, and green areas. In general, urban development in Aalborg is densified along a high-class collective bus connection, which has a focus on green urban spaces and mobility hubs. Public transport and active mobility are central to dense urban development, focusing on health, good quality urban life, and CO₂ reductions. The green and recreational aspects of the city have been central to the transformation, as a dense city without green areas is simply unattractive. Densification has been, and continues to be, a principle of the city's transformation for sustainability and topographical reasons. The topography and landscape in and around Aalborg mean that the city needs to develop primarily through transformation and densification within the existing boundary of the city. The river valleys stand out as clear traces in the landscape and form a distinct and well-defined boundary between urban and rural areas. At the same time, the river valleys are low-lying and are challenged by climate change. However, they will be extremely suitable for new nature areas, recreation, and future water management solutions.

An important aspect of urban development has been housing. Once a city where the majority of the population lived in single-family homes, Aalborg is now a city where most people live in apartments, which means significant urbanisation has occurred in the past 30 years. Today, thanks to, amongst others, investment in student housing, Aalborg has quite a diverse range of residential areas with inexpensive student apartments located right next to expensive owner-occupied housing in several areas that have undergone urban transformation. Achieving a mixed city has always been a planning goal in this time. This also applies to Aalborg's city centre, which has also undergone constant change since the mid-1990s. With great interest from citizens and other stakeholders and a focus on architecture and cultural heritage, the transformation has contributed to improvements and the greening of a number of urban spaces. Whereas the city centre once used to serve the city and the region with specialised trade, commerce occupies less space today in favour of eateries and cultural and leisure activities, although the historic centre continues to function as an important meeting place.

Sustainability has been on the agenda for many years, but the focus has increased significantly recently, both in society as a whole and in Aalborg Municipality, which, like all other Danish municipalities, has developed a climate plan with the goal of reducing CO₂ emissions by 70% compared to the baseline year of 1990. There is also a strong focus on sustainability and green transition in urban planning. Compact urban development with green qualities is a strategic goal in physical planning, which is in line with the aim of a

mixed city, both in terms of functions, the types of housing, and social differences. Various tools are being developed to support sustainable development in planning and projects.

Climate adaptation is an important agenda, and it is receiving increasing attention. Recently, Aalborg Municipality was designated as a flood risk area, which means that a risk management plan must be developed to prevent flooding but also to ensure preparedness to mitigate potential floods in the future. In general, cities and landscapes need to be made resilient to sea level rise, cloud-bursts, persistent rainfall, and groundwater in the terrain, as well as storms and heatwaves, which are further consequences of climate change. Therefore, intense work is underway to map the challenges and prioritise actions in a climate adaptation plan and in specific projects to make cities more resilient. This work is integrated with urban planning to create solutions that can achieve multiple goals, such as climate adaptation and recreation, at the same time.

If Aalborg is going to be the subject of teaching in urban planning and urban transformation processes, it is important to highlight the approach that has been adopted. Central to the process of creative urban development and transformation has been the distinctive working culture and an emphasis on open and network-orientated innovative collaboration. With strong political ownership of the visions, close and trusting contacts between the professional actors in the city, and a short distance between ideas and decisions, Aalborg has been known as a creative and development-orientated working environment for many years, which has made the continuous incorporation of new elements into the overall urban development strategy possible.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Introduction

Rethinking Urban Sustainability – Situated Planning Practices and Everyday Transitions

Enza Lissandrello and Alessandra Badami

When the city of Aalborg is mentioned, scholars of urban studies and city researchers inevitably recall the *Aalborg Charter*. More than just a city in northern Denmark, Aalborg has become a powerful symbol, an international point of reference for sustainable urban development. Since the signing of the Charter in 1994, the city has gained recognition across policy circles and academic debates, its name circulating through international conferences, policy frameworks, and urban regeneration programmes. Over time, Aalborg has evolved into a credible brand of sustainability.

Yet Aalborg represents far more than its formal policy declarations. Emerging from a context shaped by industrial decline, socio-economic challenges, and intensifying environmental concerns, the city exemplifies how territorial reinvention can serve as a response to urban crisis. Its trajectory demonstrates that cities can be reimagined and revitalised through emblematic projects deeply rooted in the material and symbolic characteristics of place. In Aalborg's case, the Limfjord and its industrial memory have been key assets valorised through place-based planning and major infrastructure investments.

In this book, Aalborg is seen as a city that has embodied a long-term strategic vision of transformation. Aalborg has combined strategic planning with situated design practices, navigating between sustainable idealism and pragmatic urbanism. This dual character has captured the attention of the two authors – both Italian urban scholars – who bring distinct yet complementary perspectives to the study.

Enza Lissandrello, originally from northern Italy, has lived and worked at Aalborg University for nearly two decades, closely observing the city's gradual but determined transformation from within. Alessandra Badami, based in southern Italy at the University of Palermo, teaches and researches urban regeneration amidst the structural challenges of uneven development. United by a shared commitment to learn from the interplay between sustainability principles and urban transformation, governance and design, decisions and everyday life, the authors have approached Aalborg as a case that invites deep reflection on contemporary cities.

This book emerged from that intellectual encounter and a common research question: *What makes Aalborg such a compelling, exemplary, and, at the same*

2 Urban Sustainability in the Making

time, deeply specific case of urban sustainability? What does it mean to pursue sustainability in an urban world marked by inequality, uncertainty, and socio-ecological urgency?

Rather than treating urban sustainability as a fixed endpoint or a purely technical exercise, the book approaches it as an evolving narrative – a social, institutional, and spatial process shaped over time through public policies, design experimentation, adaptation, conflict, and practice. In this sense, Aalborg is not seen as a model to be replicated but a *situated case* from which to learn from context-dependent practices, a new stimulus to theorise planning and design for urban sustainability.

The Aalborg contemporary story continues to offer valuable insights for scholars, planners, and practitioners engaged in navigating the complexities of sustainable urban transitions in an era marked by crisis, uncertainty, and contested democratic values. Aalborg, as interpreted in this book, is a city of hope. A city that, for historical, political, and cultural reasons, continues to inspire on how different planning projects and processes, rationalities, values, and practices coalesce – or collide – in shaping planning trajectories. At the heart of this book lies a normative commitment to rethinking urban sustainability as both an epistemological challenge and a democratic task of planning.

To this end, the book draws on interdisciplinary theoretical perspectives derived from critical urban studies, governance theory, and phronetic planning to situate Aalborg within broader debates on urban sustainability narratives, planning rationalities, and democratic governance. It advances a more nuanced vocabulary of urban sustainability, one that is attentive to power, practice, and plurality.

Structure of the Book

The book is organised into eight chapters that trace how urban sustainability has been imagined, institutionalised, and contested in Aalborg across shifting spatial scales, governance configurations, and socio-political dynamics (Figure 0.1).

Chapter 1 – The Urban Sustainability Compass. Introduces the conceptual and methodological foundations of the book. Aalborg is positioned as a paradigmatic case of sustainability in the making, and a novel heuristic framework – the *Urban Sustainability Compass* – the Compass integrates four interpretive logics (*Urgency*, *Legitimation*, *Implementation*, and *Experimentation*) with four theoretical perspectives: *Urban Political Ecology*, *Just Sustainability*, *Phronetic Planning*, and *Urban Sustainability Governance*. Urban sustainability is treated not as a stable outcome but as a reflexive, narrative, and situated practice.

Chapter 2 – Aalborg in Transition: Historical Pathways to Sustainability. Reconstructs Aalborg's development from the 16th century through the industrial and post-industrial periods. Anchored in the logic of *urgency*, the chapter draws on Urban Political Ecology to show how socio-ecological crises triggered spatial ruptures and new sustainability imaginaries.

Chapter 3 – Strategic Planning for Urban Sustainability: The Aalborg Turn. Examines the strategic shift in municipal planning following the 1994 Charter. Through the logic of *legitimation* and the lens of *Urban Sustainability Governance*, the chapter explores how participatory tools, spatial visions, and planning instruments embedded sustainability into the city's governance culture.

Chapter 4 – Urban Identity Transformation: The Aalborg Waterfront. Focuses on the transformation of the central waterfront across three phases. Guided by the logic of *implementation*, the chapter interprets cultural infrastructures, design interventions, and symbolic place-making through *Phronetic Planning*, emphasising local judgement, civic ambition, and experimentation.

Chapter 5 – Norresundby Waterfronts: A Multifunctional and Ecologically Integrated Urban Environment. Analyses the transformation of disused industrial areas on the northern fjord shore into a multifunctional ecological landscape. Dominated by *implementation* and *legitimation*, the chapter applies *Just Sustainability* to examine inclusive governance, adaptive planning, and spatial redistribution of environmental benefits.

Chapter 6 – Green Infrastructures and Ecological Design as Urban Regeneration Devices. Investigates ecological design strategies such as the reopening of the Østerå River and the redevelopment of *Budolfi Plads*. With *experimentation* and *legitimation* as dominant logics, the chapter draws on *Urban Political Ecology* and *Just Sustainability* to analyse the blending of environmental and democratic values.

Chapter 7 – Mobility as a Catalyst for Sustainable Urban Transformation. Explores Aalborg's mobility transitions from public transport to cycling infrastructure and pedestrian zones to peripheral areas and the persistent challenge with automobility. It connects *urgency* and *implementation* while highlighting governance dilemmas through *Urban Sustainability Governance*, focusing on climate goals, *Just Sustainability*, and narrative strategies.

Chapter 8 – Conclusion: Why Aalborg Still Matters? Urban Sustainability in the Making. Synthesises the book's conceptual and empirical insights. Revisiting the Compass and theoretical frameworks, the chapter argues that Aalborg's sustainability trajectory reflects situated negotiation, learning, and iterative transformation rather than best practices. It also discusses future directions through the lens of the Climate Plan 2021–2030 and the *Aalborg Conditions* (2024), addressing planning amid ecological uncertainty and democratic crisis.

This book is the outcome of an intense collaboration between the authors and planning practitioners in Aalborg Municipality. We are particularly grateful to Anne Juel Andersen for her sustained engagement with our work, her lectures, her thoughtful feedback, and interviews, including the preface to this volume. Enza Lissandrello would like to thank Thomas Birket-Smith, Peder Baltzer, Annette Rosenbæk, Michael Damm and Sven Busch for their inspiring contributions to education in the MSc. in Urban Planning and Management at Aalborg University in Aalborg in the last fifteen years, as well as for interviews, and contribution to research projects connected to this book. Alessandra Badami would like to thank Bibi Weismann for her support and operational assistance at

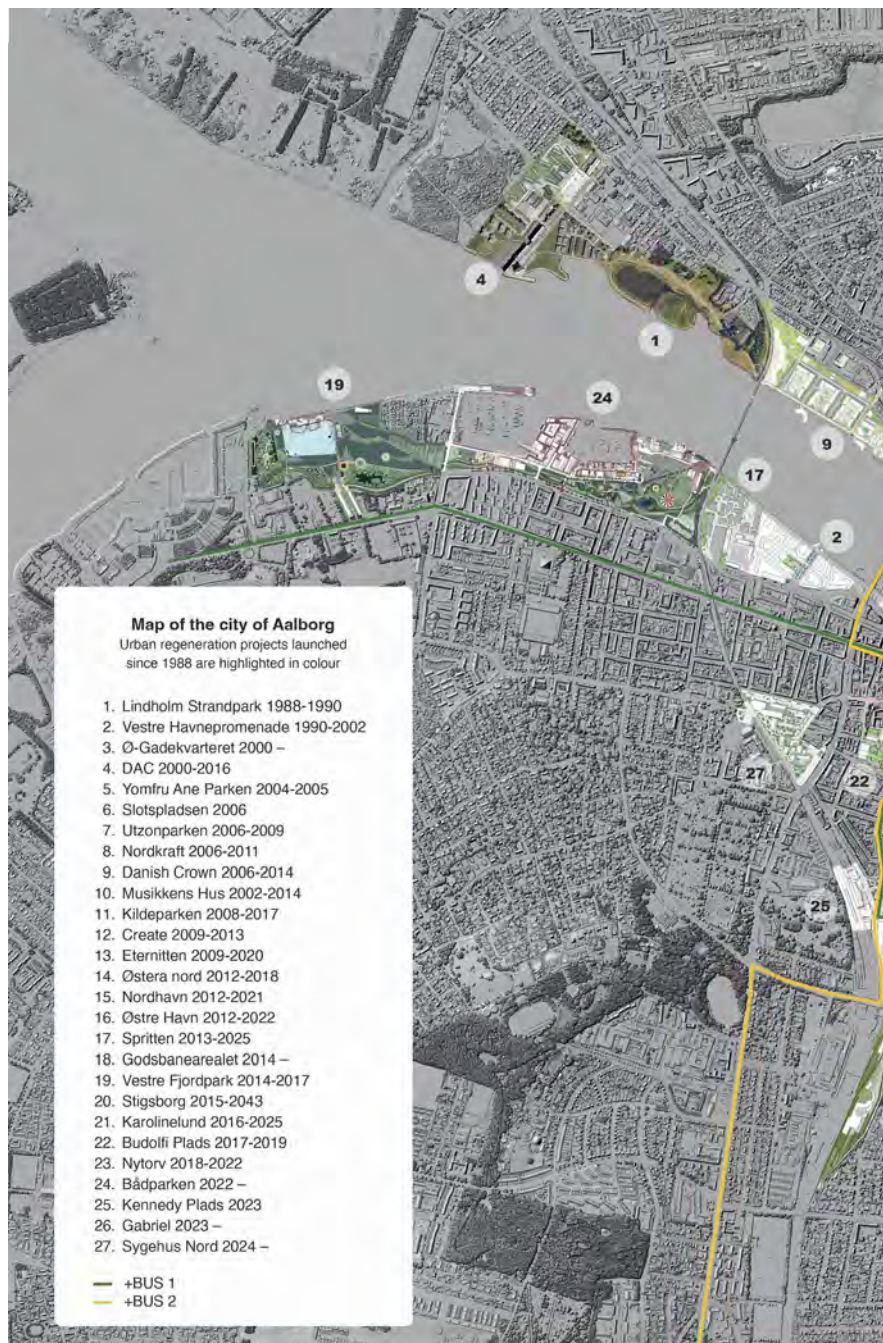


Figure 0.1 Aalborg City Plan (updated 2025). Urban Regeneration Projects, Initiated Since 1988, are Highlighted in Colour ◀

(Graphic elaboration by Alessandra Badami. Cartographic base: Dataforsyningen.dk. Source of urban regeneration projects: Plandata.dk)



Aalborg Municipality. We also would like to thank Stuart Wright for English editing work and all the staff at Routledge to support and encourage our work and especially Faye Leerink, Akansha Bharali and Savitha Jayakumar.

Ultimately, this book aims to share the reflections that emerged from the authors' research on urban sustainability. It is intended for those who study cities, those who design them, and those who govern them, but also for those who simply inhabit them and wish to understand them better. Rather than presenting Aalborg as a replicable model, we offer it as a source of inspiration – a medium-sized city that has fostered meaningful dialogue between local and global forces, tradition and innovation, environmental challenges and shared aspirations. We believe that cultivating planning cases and exchanging experiences across cities is essential in addressing the ongoing challenges faced by contemporary urban environments in Europe and beyond. In a time marked by the need to overcome crises, recover from natural and human-made disasters, we are in need to reimagine hopeful urban futures. Learning from dialogues with urban practitioners performing planning in the everyday life is a vital source of inspiration for present and future generations.

For two Italian scholars, writing this book about Aalborg was not the most natural choice, but it was a necessary one.

Aalborg and Palermo, 2nd July 2025

1 The Urban Sustainability Compass

Enza Lissandrello

Introduction: Reframing Urban Sustainability

In an era marked by accelerating climate change, ecological degradation, geopolitical instability, and the lingering effects of global pandemics, the imperative for sustainable urban transformation has never been more pressing. These overlapping crises demand planning paradigms that are not only adaptive and anticipatory but also grounded in justice, reflexivity, and institutional learning.

This book contends that classical models of ecological modernisation – grounded in the belief that environmental improvements can be achieved through technological innovation, market mechanisms, and institutional reform within existing capitalist frameworks – are increasingly inadequate (Hajer 1995; Swyngedouw 2004). While these approaches have contributed to advances in environmental governance, they tend to universalise problems and solutions, obscure power relations, and abstract from the socio-spatial specificities that shape sustainability on the ground (Blühdorn and Welsh 2007; Dryzek 2005). As a result, technocratic and market-led fixes often dominate over more situated, contested, and transformative practices.

The growing preoccupation with mainstreaming sustainability – typically through simplified models, metrics, and toolkits – risks obscuring the actual pathways being followed. In privileging standardisation and synthesis, planning may lose its capacity for critical reflection and directionality, drifting away from a deeper understanding of where we are going and why. The consequences for places and people are significant: local histories, spatial inequalities, and community knowledges risk being marginalised, while planning solutions may become detached from the lived realities and aspirations of those most affected. What often emerges is a vision of sustainability that appears coherent on paper but fails to resonate in practice.

In contrast, this book engages with the ‘urban question’ as articulated in critical urban studies (Brenner 2009; Castells 1978; Lefebvre, Kofman, and Lebas 1996), which treats sustainability not as a neutral or external objective but as a struggle over meaning-making in context, socio-spatial justice, and political transformation. This perspective shifts attention to governance arrangements, discursive framings, and material forms through which sustainability is constructed, negotiated, and contested in specific urban contexts.

DOI: 10.4324/9781003617402-2

This chapter has been made available under a CC-BY-NC-ND license.

To move beyond abstract critique and offer a grounded analytical lens, the following part of the chapter introduces the *Urban Sustainability Compass* – the framework that underpins the book’s empirical and conceptual contributions. Developed to account for the dynamic, iterative, and situated nature of sustainability in practice, the compass combines four interpretive logics (urgency, legitimization, implementation, and experimentation) with four complementary theoretical perspectives: *Urban Political Ecology*, *Just Sustainability*, *Phronetic Planning*, and *Urban Sustainability Governance*. It serves as both a heuristic tool for analysing Aalborg’s planning trajectories and a broader contribution to planning theory and sustainability governance. This framework also provides the conceptual scaffolding through which the empirical thematic and material analyses on specific projects and processes will be interpreted in the following chapters.

The chapter is structured around three interrelated research questions that guide the book as a whole:

- How has urban sustainability been conceptualised in planning and urban studies literature?
- How do planning practices and governance instruments shape the implementation of sustainability on the ground?
- How does the case of Aalborg illustrate the situated, narrative-driven, and contested processes of urban sustainability in the making?

The book’s conceptual novelty lies in its treatment of urban sustainability not as a fixed endpoint or a checklist of indicators, but as a recursive, evolving narrative embedded in governance, spatial transformation, and institutional learning.

The Aalborg Case

Aalborg offers a rich empirical site for this inquiry. As a medium-sized Danish city with a longstanding reputation for planning innovation, environmental regeneration, and participatory governance, it has often served as a reference point in international planning debates. Notably, Aalborg was positioned as a key case in Flyvbjerg’s foundational work on power, rationality, and democracy in planning practice (Flyvbjerg 1998b). Building on that foundation, this book shifts attention from questions of deliberative rationality to the evolving governance practices, planning instruments, and spatial interventions that shape sustainability in the contemporary urban context.

Through detailed examination of themes such as waterfront redevelopment, green infrastructure, and sustainable mobility, the book shows that urban sustainability does not unfold through linear planning or technocratic implementation. Rather, it is continuously made and remade through tensions, contradictions, material practices, and institutional adaptations. The concept of *urban sustainability in the making* captures this ongoing process of

contestation and co-evolution, where sustainability is not a predetermined goal but a dynamic field of negotiation embedded in power, place, and practice. Reflexivity is highlighted as both an operational method and a cultural orientation in sustainability planning. Drawing on Donald Schon's (1983) notion of the 'reflective practitioner' and Willson's (2020a) conception of planners as agents of ethical and strategic learning, the chapter shows that planners embraced complexity through iterative experimentation with zoning, public engagement, spatial typologies, and climate-responsive infrastructure. This approach echoes planning scholarship that positions reflexive practice as key to navigating uncertainty, pluralism, and long-term transformation (Lissandrello and Grin 2011).

Structure of the Chapter: The remainder of this chapter introduces the conceptual and methodological foundations that guide the book. It first presents the *Urban Sustainability Compass* and elaborates its interpretive logics and theoretical components. The next part outlines the methodological approach, which draws on qualitative, interpretive, and collaborative strategies rooted in long-term engagement with Aalborg's planning landscape. This is followed by a historical reconstruction of Aalborg's urban transformation, from post-industrial decline to its current sustainability-orientated agenda. The final part reflects on Aalborg's planning legacy as a site of learning and experimentation, setting the stage for the empirical chapters that follow, each addressing a key dimension of urban sustainability as an ongoing and situated process through the *Urban Sustainability Compass*.

Evolving Debates in Urban Sustainability

The current debate on planetary urbanisation and the Anthropocene has sharpened awareness of the profound environmental, social, and political challenges confronting contemporary urban development (Biermann 2022; Steffen, Crutzen, and McNeill 2007; Wakefield 2022). These discussions call into question prevailing models of growth and resource consumption and bring the urgent need to reconfigure urban systems in response to planetary limits to the fore. At the heart of this discourse lies the enduring dilemma of how to translate general principles of sustainability – such as environmental integrity, social equity, and intergenerational responsibility – into place-specific planning frameworks and institutional practices. Since the publication of the Brundtland Report (United Nations 1987), which advanced the idea of sustainable development as a moral imperative for future generations (Castells 2000), the sustainability agenda has evolved amidst overlapping global crises, including climate emergencies, geopolitical instability, and post-pandemic recovery. In this context, the quest for urban sustainability is increasingly in need of efforts that bridge the gap between theory and practice and attempt to align normative scientific frameworks with context-sensitive planning and design interventions. This requires not only translating abstract principles into action but also navigating the complex socio-political terrain where competing interests, values, and knowledge intersect. At the same

time, it is crucial to understand the underlying drivers that shape these sustainability transformations – whether they be political, institutional, cultural, or ecological – as well as the narratives through which they are legitimised, contested, and made actionable. As such, urban planning and design are not merely technical fields but arenas of meaning-making and value negotiation, where sustainability is actively interpreted, contested, and enacted. These tensions and opportunities underpin the analytical orientation of this book, which engages with global sustainability goals – such as the United Nations Sustainable Development Goal 11 on inclusive, safe, resilient, and sustainable cities and communities (United Nations 2015) – through the lens of situated urban transformation. Urban sustainability has long been a foundational – though evolving – concept in planning and urban studies. Early frameworks, such as the ‘planner’s triangle’, positioned sustainability as a negotiation between environmental protection, economic growth, and social equity. Sustainability ambitions in urban planning are often constrained by institutional commitments to economic competitiveness, underscored by the structural contradictions between long-term environmental objectives and dominant growth-orientated rationalities (Campbell 1996), which continue to shape sustainability planning discourse and practice (Næss 2001). Yet today, the field is increasingly confronted with the need for a more nuanced and reflexive vocabulary of urban sustainability, one that moves beyond binary classifications of ‘sustainable’ versus ‘unsustainable’ practices. The key question is not whether planning conforms to abstract sustainability ideals, but rather: *what are the actual drivers of meaning-making of urban sustainability, and how do these drivers influence the trajectory of urban transformation in planning and design practices?* This perspective highlights the importance of examining the socio-political, institutional, and cultural processes through which sustainability is defined, legitimised, and materialised in specific urban contexts. It calls for approaches attentive to ambiguity, contested values, and situated knowledge, rather than prescriptive models or technocratic solutions. In the early 2000s, scholars attempted to reframe sustainability through the lens of governance innovation and policy diffusion (Bulkeley and Betsill 2005; McCormick et al. 2013), emphasising the growing complexity of institutional arrangements and global-local interactions that shape sustainability in practice. Meanwhile, critical scholars challenged the technocratic orientation of mainstream sustainability agendas, calling for greater attention to power, inequality, and political struggle (Swyngedouw and Kaika 2003). This critical turn gave rise to new paradigms, including *Urban Political Ecology* (Heynen, Kaika, and Swyngedouw 2006) and *Just Sustainability* (Agyeman 2013), which emphasise the need for systemic change. Recent contributions continue to diversify the field, for instance, highlighting the intersection of climate adaptation and governance equity and advocating commons-based urbanism as a democratic and inclusive governance strategy (Foster and Iaione 2022). At the same time, widely publicised concepts like the smart city, resilient city, and 15-minute city (Moreno et al. 2021) offer new imaginaries of urban sustainability. Yet scholars caution that these frameworks risk reproducing existing socio-spatial inequalities if they are not explicitly

embedded within inclusive and justice-orientated planning practices (Kotsila et al. 2021). Against this backdrop, this book positions urban sustainability not as a fixed or universal goal, but as a dynamic, context-dependent, and narratively constructed process. It contributes to the evolving literature by integrating critical theory with empirical inquiry and by focusing on how urban sustainability is shaped through situated governance, discursive practices, and institutional change.

Conceptual Foundations of Urban Sustainability in the Making

This section advances the concept of *urban sustainability in the making* as a lens for theorising sustainability transformations not as linear or predetermined trajectories, but as open-ended, contested, and contextually grounded processes. To explore how such processes unfold in practice, the book integrates the following four interrelated lines of thought – *Urban Political Ecology*, *Just Sustainability*, *Phronetic Planning*, and *Urban Sustainability Governance*. Together, they form a composite framework for analysing the co-evolution of ecological rationalities, planning practices, institutional configurations, and narrative constructions.

Urban Political Ecology offers a critical lens on the socio-natural dimensions of urbanisation. It challenges the assumption that infrastructure and environments are neutral or technical systems, revealing instead that they are shaped by historical inequalities and socio-political power relations (Heynen et al. 2006; Swyngedouw and Heynen 2003). This approach frames the urban as a relational assemblage in which ecological processes and political struggles co-produce infrastructure, governance regimes, and spatial outcomes (Swyngedouw 2004; Swyngedouw and Kaïka 2000). In Aalborg, this perspective informs the analysis of contested redevelopment, energy transitions, and climate planning, particularly in relation to structural inequalities (Angelo and Wachsmuth 2020).

Just Sustainability emphasises the interdependence of environmental sustainability, social equity, and participatory governance (Agyeman 2005, 2013). It challenges technocratic and market-based approaches, which marginalise questions of justice, focusing instead on culturally grounded, inclusive practices that integrate both procedural and distributive fairness (Agyeman and Evans 2004). In the context of Aalborg, this lens helps illuminate issues that have influenced and continue to influence urban transformation, such as mobility justice and the uneven distribution of green amenities and energy.

Phronetic Planning promotes practical wisdom (phronesis), ethical reflection, and an awareness of power in planning (Flyvbjerg 1998b, 2001; Flyvbjerg and Gardner 2022). It resists instrumental rationality in favour of context-sensitive, value-driven deliberation. In this view, planning is a moral and political act, embedded in institutional cultures and shaped by conflicting interests. Flyvbjerg's early work in Aalborg revealed that planning outcomes often reflect power asymmetries more than rational consensus. This perspective remains influential in analysing deliberation, institutional learning, and contested planning outcomes.

Urban Sustainability Governance focuses on how sustainability is institutionalised through visions, indicators, regulations, and strategic frameworks (Smith and Wiek 2012). It highlights cross-sectoral coordination, the role of governance norms, and the integration of long-term visions into local practices. In Aalborg, this is exemplified by the Aalborg Charter, Local Agenda 21, and the Aalborg Commitments – strategies and principles that have shaped sustainability discourse and practice at multiple levels.

Bringing these four lines of thought into dialogue yields a multidimensional framework. Each perspective offers a distinct contribution: *Urban Political Ecology* provides structural critique and materialist insight; *Just Sustainability* addresses justice and inclusion; *Phronetic Planning* adds ethical and practical reasoning; and *Urban Sustainability Governance* clarifies the institutionalisation of norms and visions.

These lines of research support a reflexive, relational, and process-orientated approach to urban sustainability as meaning which is made and remade in projects and processes of urban transformation.

The Urban Sustainability Compass

Building on Willson's (Willson 2020a, 2020b) conception of planning as a logic-based endeavour, this book develops a novel framework introduced here as the Urban Sustainability Compass with the aim of understanding how sustainability is reasoned through, narrated, and materialised in urban contexts. It rejects the idea that planning is a linear, rational, or purely technical process. Instead, it argues that planning operates through interpretive logics that are forms of situated reasoning and sense-making that help planners navigate the complexity, uncertainty, and contestation inherent in sustainability transition.

Four interrelated logics form the backbone of this framework: *urgency*, *legitimation*, *implementation*, and *experimentation*. These logics draw on a range of theoretical sources in planning and sustainability studies, which are elaborated on in terms of urban sustainability.

Urgency captures the catalytic role of crises, which range from climate disruption to economic collapse, and which destabilise established routines and prompt the emergence of new agendas (Grove 2014). This, therefore, inspires the idea that the sense of urgency may spark a drive for urban sustainability in specific narratives.

Legitimation centres on the communicative, symbolic, and participatory work required to make sustainability credible, publicly acceptable, and institutionally embedded (Hajer, 1995; Healey, 2007). This inspires the notion that processes of legitimation may steer the meaning of urban sustainability in specific directions.

Implementation addresses the task of translating visions into action through plans, tools, and infrastructural interventions (Lubell and Robbins 2022; Smith and Wiek 2012), which leads to the idea that projects, processes, and planning practice engage with and give meaning to abstract ideas of urban sustainability, directing them into specific priorities of intervention.

Experimentation underscores the provisional and iterative nature of planning in contexts of uncertainty, where governance innovation unfolds through learning, adaptation, and institutional reflexivity (Bulkeley et al., 2016; Turnhout et al., 2020). This inspires the idea that attempts to re-evaluate priorities and engage with new interpretive frameworks of urban sustainability condition the progression of meaning and practices of urban sustainability itself.

These *logics* do not follow a fixed sequence but interact recursively. Logics serve to illuminate which priorities emerge, how decisions are justified, and how actions are revised over time in planning practice. These logics also operate at different scales and through diverse mechanisms, from formal policy frameworks to informal practices and everyday negotiations. To make sense of how these logics manifest in practice, the book brings them into dialogue with the four theoretical perspectives described above.

Urgency often resonates with the structural critique offered by *Urban Political Ecology*. *Legitimation* aligns with the participatory and normative commitments of *Just Sustainability*. *Implementation* reflects the operational focus of *Urban Sustainability Governance*. *Experimentation*, finally, finds support in the ethical and adaptive orientation of *Phronetic Planning*. The interplay of the ‘interpretive logics’ and these ‘theoretical perspectives’ shapes the *Urban Sustainability Compass*, which is a conceptual framework that supports the interpretation of narratives of urban sustainability. The Urban Sustainability Compass (Table 1.1) serves as both an analytical guide and a reflexive framework for exploring how urban sustainability is imagined, institutionalised, and transformed in practice.

Planning is thus understood as a narrative practice – a mode of storytelling that negotiates between past legacies, present dilemmas, and future aspirations. In Aalborg, these dynamics play out through recurring storylines of ecological modernisation, post-industrial transformation, and democratic experimentation. The city’s planning trajectory is not a smooth progression but a layered and contested process, which is shaped by shifting rationalities and evolving narratives of urban sustainability.

Table 1.1 Interpretive Logics, Theoretical Perspectives, and Narratives of Urban Sustainability (Elaboration: Enza Lissandrello) ◀

<i>Interpretive Logics</i>	<i>Theoretical Perspectives</i>	<i>Narratives of Urban Sustainability</i>
Urgency	Urban Political Ecology	How do crises reconfigure urban systems and expose structural inequalities?
Legitimation	Just Sustainability	How are claims of participation, recognition, and justice articulated and legitimised?
Implementation	Urban Sustainability Governance	How are sustainability visions institutionalised through tools, coordination, and policies?
Experimentation	Phronetic Planning	How does ethical judgement in planning guide learning and experimentation under conditions of uncertainty?



Figure 1.1 The Urban Sustainability Compass. ↗

(Concept and design: Enza Lissandrello; visual elaboration: Alessandra Badami).

The compass serves as a visual heuristic which guides the analysis throughout the book, capturing how sustainability is reasoned through, narrated, and enacted within real-world planning contexts. The circular layout reflects the non-linear, recursive and reflexive nature of sustainability governance, while the connections across perspectives and logics illustrate their interdependence in shaping transformative urban practice.

The compass integrates the four theoretical traditions described earlier – *Urban Political Ecology*, *Just Sustainability*, *Phronetic Planning*, and *Urban Sustainability Governance* – each occupying a quadrant of the circular framework (Figure 1.1). These are animated by four interpretive logics: *urgency*, *legitimation*, *implementation*, and *experimentation*. Placed along the axes of the compass, these logics allow the reader to trace the evolving pressures, dilemmas, and rationalities that shape urban sustainability interventions.

The *Urban Sustainability Compass* is not a static model but a *heuristic device* which is designed to help trace how urgency, legitimation, implementation, and experimentation manifest across scales, institutions, and moments in time. It provides a flexible yet structured approach to interpreting urban sustainability as a process *in the making*. The following sections elaborate on the methodological approach used in this book to engage with these dynamics in the empirical case of Aalborg, detailing how the compass guided fieldwork design, data interpretation, and collaborative inquiry.

Methodological Approach: A Situated, Interpretive, and Collaborative Inquiry

This study combines qualitative, interpretive, and collaborative strategies within a single-case study design (Flyvbjerg 2004), positioning Aalborg as a ‘paradigmatic’ case of Urban Sustainability Governance (Yin 2018).

Data collection combined document analysis, ethnographic observation, and participatory engagement to explore the interpretive logics expressed in planning practice. Local newspapers, policy reports, and stakeholder statements are analysed to reconstruct public discourse (Bowen 2009; Rapley 2004; Yanow 2000), while digital platforms such as Aalborg Municipality's website offered real-time insights into institutional action (Lury 2012).

Participant observation occurred during public hearings and planning workshops, particularly in settings in which sustainability goals were debated and shaped. Regular co-organised workshops at Aalborg University fostered mutual learning between researchers and municipal actors (Forester 1999; Watson 2014). These sessions served as epistemic bridges linking theoretical reflection with planning practice (Lissandrello 2025).

A defining feature of the approach is its longitudinal orientation. Repeated interactions with planners across formal and informal settings yielded insights into dilemmas, institutional learning, and governance evolution. This results in a methodology that is responsive to changing conditions and institutional dynamics (Flyvbjerg 2001; Schon 1983).

By triangulating textual analysis, digital sources, ethnographic fieldwork, and collaborative relationships, the research produces a layered, processual understanding of how sustainability is conceptualised and enacted in Aalborg. It illuminates the tension between visionary goals and implementation realities, offering insights into how contradictions and contingencies are navigated in practice.

Aalborg as a Case of Urban Sustainability in the Making

Aalborg has emerged as a pivotal case in urban sustainability scholarship with research spanning more than three decades. Located in northern Denmark at the narrowest point of the Limfjord, Aalborg is the administrative centre of the North Jutland Region. As of May 2025, the municipality has a population of approximately 224,600, with around 143,600 residents in the urban core (Aalborg Municipality 2025; Statistics Denmark 2025). Although it lies beyond Denmark's primary metropolitan corridors, such as Copenhagen and Aarhus, Aalborg has transitioned from a post-industrial city to a recognised laboratory for urban sustainability.

Rather than serving as a generic example, Aalborg functions as a narrative and institutional site where urban sustainability is continuously shaped. Its evolving trajectory, which is structured around the logics of urgency, legitimisation, implementation, and experimentation, demonstrates that sustainability is not a fixed endpoint but an unfolding and contested process driven by ecological, political, and institutional change (Castán Broto and Westman 2020; Hajer and Wagenaar 2003; Hodson, Marvin, and Bulkeley 2023; Swyngedouw 2004).

In Aalborg, the logic of urgency – triggered by industrial decline, climate risk, or environmental degradation – prompted innovative planning responses. Legitimation emerged through participatory planning instruments and strategic framing, while implementation involved the deployment of tangible governance

tools derived from the Aalborg Charter and Local Green Deals. Meanwhile, experimentation was manifested in iterative governance and institutional innovation.

Aalborg demonstrates that medium-sized cities can gain global relevance through adaptive capacity and symbolic leadership (Anguelovski et al. 2019; Bulkeley and Betsill 2013; Evans, Karvonen, and Raven 2016). The city's trajectory highlights those narratives – such as ecological modernisation, post-industrial regeneration, and democratic sustainability – that function both as discursive framings and material interventions embedded in planning tools, participatory formats, and infrastructure projects.

The Narrative Foundation of Urban Sustainability in Aalborg

Bent Flyvbjerg's early work (Flyvbjerg 1991, 1998a) positioned Aalborg as a paradigmatic site for Phronetic Planning. His critical analysis of the city's early green initiatives revealed tensions between democratic aspirations and entrenched power structures, which framed sustainability not as a consensus-driven ideal but as a politically charged and context-dependent process. This foundational narrative casts urban sustainability as a value-laden practice shaped by governance dynamics, institutional cultures, and the interpretive agency of planners and citizens.

From the mid-1990s into the early 2000s, Aalborg was narratively and institutionally redefined as a sustainability pioneer, thanks to its leadership implementing Local Agenda 21 (Evans and Theobald 2003; Lafferty and Eckerberg 1998; Næss 2001) and its location within expanding transnational governance networks. This enhanced participatory planning and municipal policy, which was driven by the urgency of ecological decline and the pursuit of legitimacy through public engagement. In the mid-2000s, a new narrative emerged around innovation, identity, and integration. Sustainability became the keyword for rethinking urban mobility and transportation planning as the backbone of urban development (Hansen 2005); cultural branding and waterfront redevelopment became strategies of spatial storytelling (Jensen 2005, 2007, 2009); and forms of hybrid governance emerged with public authority and market logic merging to reshape both infrastructure and urban imaginaries (Galland and Carsten 2012). Sustainability discourses became progressively materially embedded in the city's fabric (Miller and Wyborn 2020) in flagship urban projects. This provided wave and network models that conceptualised planning as an iterative, multi-scalar narration (Andersen 2013, 2016), which was aligned with Phronetic Planning's emphasis on practical reasoning and contextual wisdom and portrayed planning as a narrative act: the continual framing and reframing of futures through projects, processes, and symbols.

As research turned to climate and energy transitions, Aalborg became the subject of scenario modelling and energy futures (Lund et al. 2025), with research that broadened the narrative scope to Aalborg with mobilities design in Aalborg Øst (Jensen and Lanng 2020), illustrating how spatial strategies

shape embodied experience and social imaginaries. Aalborg's Cycling City initiative also received research attention, as it highlighted participatory planning as both governance and storytelling, where infrastructure serves as a medium for socio-ecological transformation.

Recent scholarship has also focused attention on Aalborg's treatment of the symbolic dimensions of planning, for example, interpreting light rail infrastructure as an 'artefactual anchoring' narrative that consolidates visions, fosters consensus, and inscribes futures into the built environment (Mäntysalo, Olesen, and Granqvist 2020), which underscores the fact that infrastructure projects are increasingly acting as 'discursive nodes' (Rosengren 2022) where competing imaginaries of the green city meet. These contributions reinforce *Urban Sustainability Governance's* focus on the performative and integrative functions of planning tools, which link narrative, materiality, and institutional change.

Scholarly contributions to Aalborg's sustainability journey (Table 1.2) reflect different combinations of interpretive logics and theoretical lenses, which highlight the evolving ways in which urgency, legitimation, implementation, and experimentation have been reasoned through and enacted in Aalborg's planning. These studies demonstrate that the city's development is not only institutionally complex but also narratively rich as it interweaves interpretive reasoning with material practice.

Viewed through the lens of the Urban Sustainability Compass, these evolving narratives demonstrate that urgency, legitimation, implementation, and experimentation operate not as abstract categories but as dynamic forces that are shaped by and embedded in Aalborg's planning story. This perspective is

Table 1.2 Mapping Aalborg's Scholarly Narratives through the Compass Framework (Elaboration: Enza Lissandrello) ↱

<i>Source/Author(s)</i>	<i>Narrative Focus</i>	<i>Compass Quadrant</i>
Flyvbjerg (1991, 1998b)	Tensions in early green planning; democratic dilemmas	Urgency/Legitimation → Phronetic Planning
Lafferty and Eckerberg (1998); Næss (2001)	Local Agenda 21 and participatory governance	Legitimation → Just Sustainability
Hansen (2005); Jensen (2005, 2007, 2009)	Sustainability through mobility and cultural branding	Implementation → Urban Sustainability Governance
Galland and Carsten (2012)	Hybrid governance and infrastructure	Implementation → Urban Political Ecology
Andersen (2013, 2016)	Multi-scalar planning narratives; discursive practices	Experimentation → Phronetic Planning
Jensen and Lanng (2020); Driscoll and Mrkajic (2012)	Mobilities design and participatory storytelling	Experimentation → Urban Political Ecology
Mäntysalo et al. (2020)	Infrastructure as a discursive artefact	Implementation → Urban Sustainability Governance

particularly valuable given that, despite a rich body of narrative and analytical work, research on Aalborg as the subject of planning and design literature remains fragmented. Many studies focus on isolated projects, instruments, or policy episodes, often without tracing the connective threads and evolving trajectory of urban sustainability in Aalborg. What is frequently lacking is an integrated account of how narratives unfold over time and interact with governance structures, socio-ecological conditions, and the situated reasoning of planners. The interplay between discursive construction, institutional innovation, and spatial transformation is often under-theorised. Moreover, there is limited use of reflexive or co-productive methodologies that integrate practitioners' views as active narrative agents, which reduces the scope for understanding how sustainability is actually reasoned through and enacted in planning practice. This book, therefore, seeks to address this gap in the literature.

From Institutional Visions to Planning Practice

How has Aalborg operationalised urban sustainability through sequential phases of strategic planning, policy instruments, and socio-material interventions in practice? Organised into four interrelated subsections – post-industrial transformation, landmark governance declarations, operational tools, and contemporary strategic visions – this section reveals that sustainability in Aalborg has evolved not as a linear process but through iterative processes of institutional learning and reflexive governance. These developments exemplify that *urban sustainability in the making* unfolds through overlapping and recursive logics of urgency, legitimation, implementation, and experimentation (Hajer and Wagenaar 2003; Turnhout et al. 2020).

Aalborg's urban contemporary development trajectory can be delineated into four periods, each catalysed by political, social, or economic ruptures (Andersen 2013). These disruptions produced discontinuities in planning paradigms and institutional orientations, which reshaped how sustainability was reasoned through and enacted.

The first phase, from the post-WWII era to the 1973 oil crisis, was characterised by functionalist modernisation. Aalborg adopted rationalist planning ideals, focusing on large-scale urban renewal: slum clearance, the construction of car parks and shopping centres, and the spatial prioritisation of automobil- ity. This reflects a logic of implementation grounded in modernist faith in technical expertise and centralised authority.

The 1973 oil crisis ushered in a second phase, prompting a shift towards conservation, liveability, and participatory values. Urban design began to prioritise historical preservation and non-motorised mobility, which was accompanied by more democratic, inclusive planning processes. The environmental and economic shocks reflected a logic of urgency that opened pathways for legitimation through public engagement and normative reframing.

A third period began around the fall of the Berlin Wall in 1989, which coincided with a deep industrial crisis in Aalborg. The resulting economic void

enabled large-scale urban regeneration, particularly along the waterfront. Public-private partnerships drove flagship projects, symbolic architecture, and the city's rebranding as a hub of knowledge, innovation, and culture. Urgency and legitimisation converged, supported by narratives of transition and spatial transformation. The 1994 Sustainable Cities and Towns Conference – hosted in Aalborg – became a critical narrative and institutional anchor, which embedded global sustainability discourse within local governance frameworks through the Aalborg Charter (Hajer 1995; Lafferty and Eckerberg 1998; Westman and Broto 2023).

Following the 2008 financial crisis, Aalborg entered a fourth phase, which emphasised strategic competitiveness and environmental resilience. Growth corridors, ecosystem services, and cross-sectoral governance framed sustainability experimentation. Tools and metrics became central to planning practices, thereby reflecting a dominant logic of experimentation with innovation, learning, and adaptive governance coming to the fore.

Across these four periods, the waterfront emerged as the symbolic and material epicentre of Aalborg's sustainability transition – where governance innovation, environmental restoration, and narrative inscription converged.

Therefore, Aalborg is a paradigmatic case of urban sustainability in the making: a city where urgency, legitimisation, implementation, and experimentation are deeply interwoven in the evolving urban structure, urban governance, and spatial transformation. These four planning phases demonstrate that urgency, legitimisation, implementation, and experimentation operate not as abstract categories but as dynamic and interrelated forces – shaped by crisis, institutional learning, civic engagement, and governance adaptation. Aalborg's trajectory from visions to planning practice of urban sustainability illustrates that narrative acts both as a lens for interpretation and as an instrument of transformation, which guides strategic choices and embeds sustainability into the city's evolving spatial and institutional fabric.

Figure 1.2 visualises this evolution through a horizontal timeline that links each phase of Aalborg's development to dominant planning logics and narrative anchors. The figure depicts how implementation, urgency, legitimisation, and experimentation have shaped distinct periods in Aalborg's sustainability

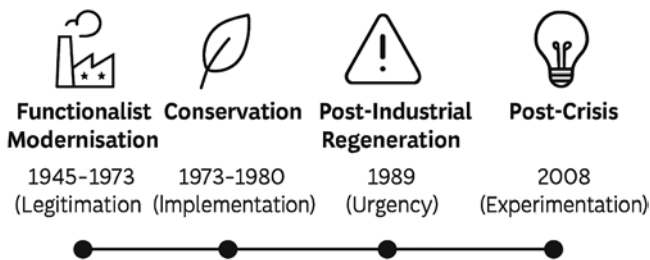


Figure 1.2 Drivers of Urban Sustainability in Aalborg. ↻

(Elaboration: Enza Lissandrello).

journey – from post-war modernisation to contemporary environmental governance. Icons and labels mark the planning focus of each era, highlighting that shifts in societal values, institutional learning, and external crises have reconfigured planning rationalities. This visualisation complements the narrative by illustrating the recursive and overlapping nature of urban sustainability in the making.

Post-Industrial Decline and the Foundations of Sustainability Planning

Between the 1970s and 1980s, Aalborg experienced major deindustrialisation, particularly in shipbuilding and cement manufacturing. This transformation generated socio-economic distress, extensive brownfield abandonment, and infrastructural decline. Crises created a clear logic of urgency, as the city sought to respond to spatial and environmental degradation tied to industrial modernity (Goh 2020; Heynen et al. 2006; Swyngedouw 2004).

In this context, Aalborg became one of the first European cities to adopt Local Agenda 21 following the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. Agenda 21 is a comprehensive global action plan aimed at promoting sustainable development through decentralised, participatory governance (United Nations 1992). Aalborg's implementation of Local Agenda 21 included establishing a Sustainable Development Committee, which launched monthly stakeholder forums and integrated cross-sectoral coordination. These initiatives exemplify the normative and deliberative orientation of planning, where value-laden judgement and situated knowledge guide planning decisions (Flyvbjerg 2001; Sandercock 2003; Turnhout et al. 2020).

Aalborg Municipality adopted its first Traffic and Environmental Action Plan (Aalborg Kommune, 1994/1999), which served as a strategic foundation for addressing traffic-related environmental challenges—launching measures that included bus prioritization and sustainable transport innovations. These interventions reflect the logic of legitimation as municipal leaders sought to justify new trajectories through citizen engagement and visible infrastructural outcomes (Agyeman 2005; Anguelovski et al. 2019).

Nevertheless, early sustainability planning faced barriers including institutional fragmentation, unequal participation, and implementation fatigue. These dynamics resonate with critiques of surface-level sustainability discourse that fails to address deeper issues of distributional and procedural justice (Agyeman and Evans 2004; Bulkeley 2022).

Governance Instruments and Declarations

The adoption of the Aalborg Charter in 1994 marked a significant turning point in the institutionalisation of urban sustainability. Rather than framing sustainability as solely an environmental concern, the Charter repositioned cities within a complex, multi-level governance challenge. Advocating participatory democracy,

environmental integration, and long-term planning as core principles, the Charter quickly gained traction across Europe. With endorsements from over 3,000 municipalities, the Aalborg Charter established itself as a foundational governance document, offering both symbolic alignment and strategic legitimacy (ICLEI 1994; Lafferty and Eckerberg 1998). This momentum represented a shift in Aalborg's sustainability pathway from the logic of urgency to that of legitimisation, as political consensus and narrative framing became central mechanisms for embedding sustainability in institutional agendas (Bulkeley and Betsill 2013; Kotsila et al. 2021).

Building on this foundation, the Aalborg Commitments (ICLEI 2004) continued to translate these principles into thematic and actionable goals across domains such as climate mitigation, sustainable procurement, urban mobility, and public health. These commitments operationalised sustainability across departmental silos, thereby reinforcing the logic of implementation through the integration of monitoring tools, performance indicators, and institutional learning (Forester 1999; Torrens and von Wirth 2021; Willson 2020a). In doing so, these strategic directions consolidated Aalborg's role as a site of governance innovation and normative standard-setting within European urban policy.

The most recent development, the Aalborg Conditions (ICLEI 2024), has extended this legacy by placing Aalborg under the spotlight once again, focusing on issues such as shared governance, integrated financing, and social inclusion. Here, co-produced knowledge, horizontal partnerships, and democratic deliberation take precedence, representing a return to the logic of legitimisation, albeit now embedded within discourses of climate resilience, equity, and adaptive governance (Leach, Newell, and Scoones 2015; Westman and Broto 2023).

Taken together, these transnational governance instruments represent a layered and evolving institutional architecture for urban sustainability in Aalborg. They illustrate that the city has moved from urgency-driven responses to strategically structured frameworks of legitimisation and implementation, which have allowed Aalborg to both stabilise and continuously reimagine its sustainability trajectory. These instruments are more than tools; they are narrative devices and institutional anchors that articulate the city's ongoing effort to make sustainability governable, credible, and contextually responsive. Figure 1.2 illustrates the evolution of Aalborg's sustainability governance instruments as a layered timeline. Icons are used to symbolise each declaration and its guiding logics and effects. The diagram highlights how each milestone – the Aalborg Charter (ICLEI 1994), the Aalborg Commitments (ICLEI 2004), and the Aalborg Conditions (ICLEI 2024) – aligns with distinct planning logics, and thematic priorities that, from transnational strategies that focus on cities, generate 'Aalborg effects' in local and transnational scales and imaginaries. This visualisation represents the recursive and adaptive nature of Aalborg's governance architecture, demonstrating that sustainability transitions are staged across cycles of legitimisation, implementation, and renewed legitimisation, thereby reinforcing the interplay between policy framing at diverse levels of institutionalisation, and local enhancement with narrative continuity in urban sustainability.

Legacy, Learning, and ‘Progressive Phronesis’ in Aalborg’s Planning Practice

As demonstrated in the preceding sections, Aalborg emerges not merely as a historical case but also as a living and evolving legacy in contemporary urban sustainability planning. As seen in the previous sections, the urban governance trajectory and narrative practices act both as reference points and provocations which bring to the surface the ethical, institutional, and socio-political dilemmas inherent in transitioning towards climate-resilient, socially just, and adaptively governed cities.

Aalborg’s approach to urban sustainability has unfolded through recursive cycles of urgency, legitimisation, implementation, and experimentation. These cycles, beginning with post-industrial decline and extending through landmark governance instruments and strategic spatial visions, demonstrate that sustainability is not a fixed endpoint but a continuously negotiated and materially embedded process. In Aalborg, sustainability is shaped through the interplay of symbolic storylines, governance innovations, and infrastructural interventions.

The city’s redevelopment of brownfields, participatory mechanisms like the Aalborg Charter and Commitments, and tools such as the *Sustainability Flower* (Chapter 3) and *Local Green Deals* (Chapter 8) demonstrate how sustainability aspirations are materialised, legitimised, and periodically recalibrated (Hajer 1995; Mäntysalo et al. 2020; Westman and Broto 2023). These interventions underscore that ambition alone does not suffice and that sustainability is enacted amid friction, negotiating tensions between equity and efficiency, vision and deliverability, and innovation and structural inequality (Agyeman and Evans 2004; Anguelovski et al. 2019).

The urban sustainability trajectory encompasses several pathways, which means that policymakers and planners, as well as citizens and a variety of stakeholders, must respond to them and contend with value-driven, context-sensitive judgements that can navigate real-world complexities. Research is required to engage with continuous attention to praxis and progressive *Phronetic Planning* approaches (Flyvbjerg 2001, 2004) and ask, ‘Where are we going with *urban sustainability*? Who gains and who loses, and by which mechanisms of power? Is this development desirable? What should be done?’ (inspired by Flyvbjerg, 2004, p. 291). Aalborg’s sustainability story demonstrates that answers to these questions are not unilateral but co-produced through situated planning encounters, institutional learning, and iterative deliberation.

As shown in the chapters that follow, planning and design scholarship progresses when theorising from practice, which reflects how urban design materialises, public discourse engages, and governance mechanisms adapt (Forester 1999; Healey 2007; Sandercock 2004).

Planning and design scholarship needs to engage with theory-practice tensions to break away from technocratic dichotomies to embrace dialogic and narrative-based reasoning and engage adaptively with stakeholders,

values, and uncertainty and reinforce the importance of reflection, ethics, and storytelling in transformative planning (Forester 1999). The story about Aalborg contained in this book exemplifies this orientation and shows how theory-laden ideals become embedded, challenged, and redefined through practice.

Reflection also reveals that planning operates as a power-laden discourse where tools and visions both coordinate and contest institutional authority (Flyvbjerg and Gardner 2022). Urban sustainability has never been ideologically neutral; Aalborg has served as a terrain where legitimacy, contestation, and vision intersect.

Aalborg's planning legacy also reveals that innovation in sustainability transitions is not only technical but also discursive and symbolic (Lissandrello et al. 2017). New planning models emerge not just through policies but also through stories, values, and experimental infrastructures. Urban planning practice enacts innovation as narrative performance, thereby supporting co-production and iterative learning.

The logics and theoretical perspectives of the Sustainability Compass constitute a dynamic framework for understanding *urban sustainability in the making*, which highlights the recursive interaction of ecological rationalities, institutional arrangements, and planning imaginaries in shaping Aalborg's ongoing transformation (Bulkeley 2022; Turnhout et al. 2020). Aalborg's planning legacy offers both an empirical base and a normative horizon for understanding how the city's evolving story reaffirms the importance of reflexivity, co-production, and strategic imagination of urban sustainability in the making.

Conclusions: From Legacy to Navigation. The Urban Sustainability Compass as an Analytical and Dialogic Framework

The *Urban Sustainability Compass* presented in this chapter is the core analytical framework guiding the book on Aalborg's sustainability trajectory. The compass has been developed to capture the multidimensional and situated nature of urban sustainability as it unfolds through governance arrangements, planning instruments, spatial interventions, and place-specific imaginaries. Rather than functioning as a static typology or evaluative checklist, it is conceived as a reflexive and interpretive device that supports reading across projects, policies, and planning processes, revealing how sustainability is made, contested, and negotiated in practice.

Each empirical chapter that follows applies the compass to thematically grounded projects and processes – whether strategic planning, waterfront regeneration, green infrastructure, or mobility systems – within this conceptual matrix. The dialogue between the theoretical lens introduced here and the empirical material in the following chapters enables readers to move between abstract concepts and grounded socio-spatial materialities, synthesising the spatial, institutional, and discursive elements of Aalborg's sustainability pathway.

To ensure interpretive consistency across the book, each project, process or intervention is evaluated using a five-level scale that captures the degree of engagement with the four interpretive logics:

- 1 *Absent (0)*: No meaningful presence of the logic in the project.
- 2 *Minimal (1)*: The logic is weakly present or implicit.
- 3 *Moderate (2)*: The logic is present and shapes framing or decisions.
- 4 *Strong (3)*: The logic is explicitly embedded in design, governance, or discourse.
- 5 *Dominant (4)*: The logic defines the project's core identity and justification.

This qualitative scale allows for comparative yet nuanced interpretation, as demonstrated, for instance, in the compass diagram of Chapter 7, which visualises how various mobility projects score across different logics and theoretical lenses.

Beyond analysis, the compass is also presented as *a deliberative tool* for planning practice. Inspired by participatory instruments like the Flower of Sustainability, it invites collaborative interpretation and dialogue among diverse stakeholders.

By positioning projects and processes within the compass – whether metaphorically or through facilitated workshops – planners and publics alike can reflect on priorities, identify tensions, and co-create future directions. The compass generates a series of guiding questions that can facilitate this process: *How strongly does a project respond to climate urgency? To what extent is it perceived as legitimate across different publics? How are implementation tools being used to shape urban form and governance? Where is there room for experimentation, and how are alternative futures being explored or constrained?* These questions help make visible the rationalities, assumptions, and power dynamics that underpin sustainability practices.

The *Urban Sustainability Compass* thus embodies this book's central proposition: that sustainability is not a fixed goal but a situated, evolving, and power-laden practice. It foregrounds narrative, reflexivity, and context over metrics and benchmarks. Through this integrative and interpretive device, the book seeks to support planners, scholars, and communities in navigating the uncertainties, dilemmas, and ambitions of urban sustainability in the making. Sustainability is not a fixed endpoint but a situated and evolving practice – always in the making, always open to interpretation, and always dependent on how power, place, and possibilities navigated in context.

References

- Aalborg Municipality. 2025. *Municipal Statistics and Planning Data*. Aalborg Kommune. Retrieved [09/2025], from <https://public.skyfish.com/p/aalborgkommune/statistik>
- Aalborg Kommune. (1994/1999). *Trafik- og miljøhandlingsplan [Traffic and Environmental Action Plan]*. Aalborg Kommune, Teknik- og Miljøforvaltningen. Retrieved from

- <https://apps.aalborgkommune.dk/images/teknisk/BM/PDF/PlanVis/stading/tema/tmplan00.pdf>
- Agyeman, J. 2005. *Sustainable Communities and the Challenge of Environmental Justice*. New York: NYU Press.
- Agyeman, J. 2013. *Introducing Just Sustainabilities: Policy, Planning, and Practice*. London: Zed Books.
- Agyeman, J., and B. Evans. 2004. “‘Just Sustainability’: The Emerging Discourse of Environmental Justice in Britain?” *The Geographical Journal* 170(2):155–64. doi:10.1111/j.0016-7398.2004.00117.x
- Andersen, A. J. 2013. *Urbane Projekter: Mellem, Sted, Diskurs Og Planlægning*. Aalborg: Aalborg Universitet, vbn.aau.dk.
- Andersen, A. J. 2016. Byplanlægning i Aalborg Midtby: Fra gadegennembrud til tæt byudvikling (Del 2016 af Aalborg-bogen). Selskabet for Aalborgs Historie; Aalborg Stadsarkiv; By- og Landskabsforvaltningen i Aalborg Kommune; Aalborg Historiske Museum. Retrieved September 10, 2025, from https://bibliotek.dk/materiale/byplanlaegning-i-aalborg-midtby_anne-juel-andersen/work-of%3A870970-basis%3A52798981
- Angelo, H., and D. Wachsmuth. 2020. ‘Why Does Everyone Think Cities Can Save the Planet?’ *Urban Studies* 57(11):2201–21. doi:10.1177/0042098020919081
- Angelovski, I., J. T. Connolly, M. Garcia-Lamarca, H. Cole, and H. Pearsall. 2019. ‘New Scholarly Pathways on Green Gentrification: What Does the Urban “Green Turn” Mean and Where Is It Going?’ *Progress in Human Geography* 43(6):1064–86. doi:10.1177/0309132518803799
- Biermann, F. 2022. ‘The Future of “Environmental” Policy in the Anthropocene: Time for a Paradigm Shift.’ pp. 58–77 in *Trajectories in Environmental Politics*, edited by G. Hayes, S. Jinnah, P. Kashwan, D. M. Konisky, S. Macgregor, J. M. Meyer, and A. R. Zito. London: Routledge.
- Blühdorn, I., and I. Welsh. 2007. ‘Eco-Politics beyond the Paradigm of Sustainability: A Conceptual Framework and Research Agenda.’ *Environmental Politics* 16(2):185–205. doi:10.1080/09644010701211650
- Bowen, G. A. 2009. ‘Document Analysis as a Qualitative Research Method.’ *Qualitative Research Journal* 9(2):27–40. doi:10.3316/QRJ0902027
- Brenner, N. 2009. ‘Open Questions on State Rescaling.’ *Cambridge Journal of Regions, Economy and Society* 2(1):123–39. doi:10.1093/cjres/rsp002
- Bulkeley, H. 2022. ‘Climate Changed Urban Futures: Environmental Politics in the Anthropocene City.’ pp. 263–81 in *Trajectories in Environmental Politics*, edited by G. Hayes, S. Jinnah, P. Kashwan, D. M. Konisky, S. Macgregor, J. M. Meyer, and A. R. Zito. London: Routledge.
- Bulkeley, H., and M. Betsill. 2005. ‘Rethinking Sustainable Cities: Multilevel Governance and the “Urban” Politics of Climate Change.’ *Environmental Politics* 14(1):42–63. doi:10.1080/0964401042000310178
- Bulkeley, H., and M. Betsill. 2013. ‘Revisiting the Urban Politics of Climate Change.’ *Environmental Politics* 22(1):136–54. doi:10.1080/09644016.2013.755797
- Bulkeley, H., L. Coenen, N. Frantzeskaki, C. Hartmann, A. Kronsell, L. Mai, S. Marvin, K. McCormick, F. Van Steenbergen, and Y.V. Palgan. 2016. ‘Urban Living Labs: Governing Urban Sustainability Transitions.’ *Current Opinion in Environmental Sustainability* 22:13–17.
- Campbell, S. 1996. ‘Green Cities, Growing Cities, Just Cities?: Urban Planning and the Contradictions of Sustainable Development.’ *Journal of the American Planning Association* 62(3):296–312. doi:10.1080/01944369608975696
- Castán Broto, V., and L. K. Westman. 2020. ‘Ten Years after Copenhagen: Reimagining Climate Change Governance in Urban Areas.’ *WIREs Climate Change* 11(4). doi:10.1002/wcc.643

- Castells, M. 1978. 'Urban Crisis, Political Process and Urban Theory.' pp. 1–14 in Castells, M., *City, Class and Power*. Palgrave, London: Macmillan Education UK. https://doi.org/10.1007/978-1-349-27923-4_1
- Castells, M. 2000. 'Toward a Sociology of the Network Society.' *Contemporary Sociology* 29(5):693–99. doi:10.2307/2655234
- Dryzek, J. S. 2005. 'Deliberative Democracy in Divided Societies.' *Political Theory* 33(2):218–42. doi:10.1177/0090591704268372
- Driscoll, P.A., and V. Mrkajic. 2012. Targeted Public Participation in Sustainable Mobility Planning: A Case Study of Aalborg, Denmark. In *AESOP Congress 2012*.
- Evans, B., and K. Theobald. 2003. 'LASALA: Evaluating Local Agenda 21 in Europe.' *Journal of Environmental Planning and Management* 46(5):781–94. doi:10.1080/0964056032000138481
- Evans, J., A. Karvonen, and R. Raven. 2016. 'The Experimental City: New Modes and Prospects of Urban Transformation.' pp. 1–12 in Evans, J., Karvonen, A., & Raven, R. (Eds.) *The Experimental City*. London: Routledge. <https://doi.org/10.4324/9781315719825>
- Flyvbjerg, B. 1991. *Rationalitet Og Magt: Det Konkrete Planlægningsstudie*. København: Akademisk Forlag.
- Flyvbjerg, B. 1998a. 'Habermas and Foucault: Thinkers for Civil Society?' *The British Journal of Sociology* 49(2):210–33.
- Flyvbjerg, B. 1998b. *Rationality and Power: Democracy in Practice*. Chicago: University of Chicago Press.
- Flyvbjerg, B. 2001. *Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again*. Cambridge: Cambridge University Press.
- Flyvbjerg, B. 2004. 'Phronetic Planning Research: Theoretical and Methodological Reflections.' *Planning Theory & Practice* 5(3):283–306. doi:10.1080/1464935042000250195
- Flyvbjerg, B., and D. Gardner. 2022. *How Big Things Get Done*. New York: Penguin Random House.
- Forester, J. 1999. *The Deliberative Practitioner: Encouraging Participatory Planning Processes*. Cambridge, MA: MIT Press.
- Foster, S. R., and C. Iaione. 2022. *Co-Cities*. Cambridge, MA: MIT Press.
- Galland, D., and J. H. Carsten. 2012. 'The Roles of Planning in Waterfront Redevelopment: From Plan-Led and Market-Driven Styles to Hybrid Planning?' *Planning Practice and Research* 27(2):203–25. doi:10.1080/02697459.2012.661669
- Goh, K. 2020. 'Urban Climate Adaptation and the Reshaping of State–Society Relations: The Politics of Community Knowledge and Mobilisation in Jakarta.' *Environment and Planning C: Politics and Space* 38(1):3–20. doi:10.1177/0042098016686509
- Grove, K. 2014. 'Agency, Affect, and the Immunological Politics of Disaster Resilience.' *Environment and Planning D: Society and Space* 32(2):240–56. doi:10.1068/d4813
- Hajer, M. 1995. *The Politics of Environmental Discourse*. Oxford: Oxford University Press.
- Hajer, M., and H. Wagenaar. 2003. *Deliberative Policy Analysis: Understanding Governance in the Network Society*. Cambridge: Cambridge University Press.
- Hansen, C. J. 2005. *Sustainable Transport Planning in Aalborg: Integrating Environmental Concerns*. Aalborg: Aalborg University Press.
- Healey, P. 2007. *Urban Complexity and Spatial Strategies: Towards a Relational Planning for Our Times*. London: Routledge.
- Heynen, N., M. Kaika, and E. Swyngedouw. 2006. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London: Routledge.
- Hodson, M., S. Marvin, and H. Bulkeley. 2023. 'Governing Urban Sustainability Transitions: Lessons from Infrastructural Experimentation.' *Urban Studies* 60(4): 689–706.

- ICLEI. 1994. *Aalborg Charter*. <https://iclei-europe.org/publications-tools/?c=search&uid=2K4g4nsA>
- ICLEI. 2004. *Aalborg Commitments*. <https://iclei-europe.org/publications-tools/?c=search&uid=AvYfqdhj>
- ICLEI. 2024. *Aalborg Conditions*. https://iclei-europe.org/fileadmin/user_upload/Our_Work/Advocacy/Aalborg_Conditions/The-Aalborg-Conditions.pdf
- Jensen, O. B. 2005. 'Branding the City of the Future: Urban Branding as Relational Strategy'. *Futures* 39(9):1030–46.
- Jensen, O. B. 2007. 'Culture Stories: Understanding Cultural Urban Branding'. *Planning Theory* 6(3):211–36. doi:10.1177/1473095207082032
- Jensen, O. B. 2009. 'Flows of Meaning, Cultures of Movements – Urban Mobility as Meaningful Everyday Life Practice'. *Mobilities* 4(1):139–58. doi:10.1080/17450100802658002
- Jensen, O. B., and D. B. Lanng. 2020. *Mobilities Design: Urban Design for Mobile Situations*. London: Routledge.
- Kotsila, P., I. Anguelovski, F. Baró, J. Langemeyer, F. Sekulova, and J. T. Connolly. 2021. 'Nature-Based Solutions as Discursive Tools and Contested Practices in Urban Nature's Neoliberalisation Processes'. *Environment and Planning E: Nature and Space* 4(2):252–74. doi:10.1177/2514848620901437
- Lafferty, W. M., and K. Eckerberg. 1998. *From the Earth Summit to Local Agenda 21: Working towards Sustainable Development*. London: Earthscan.
- Leach, M., P. Newell, and I. Scoones. 2015. *The Politics of Green Transformations*. London: Routledge.
- Lefebvre, H., E. Kofman, and E. Lebas. 1996. *Writings on Cities*. Cambridge, Mass.
- Lissandrello, E. 2025. 'Power and Knowledge: The Legacy of Educating Professional Planners'. pp. 127–43 In Freudendal-Pedersen, M.; Galland, D. and Iuel-Stissing, J. (Eds.) *Planning for Urban Sustainability*. Edward Elgar Publishing.
- Lissandrello, E., and J. Grin. 2011. 'Reflexive Planning as Design and Work: Lessons from the Port of Amsterdam'. *Planning Theory & Practice* 12(2):223–48. doi:10.1080/14649357.2011.580156
- Lissandrello, E., R. Hrelja, A. Tennøy, and T. Richardson. 2017. 'Three Performativities of Innovation in Public Transport Planning'. *International Planning Studies* 22(2):99–113. doi:10.1080/13563475.2016.1196579
- Lubell, M., and M. Robbins. 2022. 'Adapting to Sea-Level Rise: Centralization or Decentralization in Polycentric Governance Systems?' *Policy Studies Journal* 50(1): 143–75. doi:10.1111/psj.12430
- Lund, H., P. A. Østergaard, P. Sorknæs, S. Nielsen, I. R. Skov, M. Yuan, J. Z. Thellufsen, B. V. Mathiesen, S. M. Benson, A. Jentsch, X. Zhang, S. Werner, R. Wiltshire, B. Möller, and N. Duic. 2025. 'District Heating in Clean Energy Systems'. *Nature Reviews Clean Technology*. doi:10.1038/s44359-025-00076-8
- Lury, C. 2012. *Inventive Methods*. Edited by N. Wakeford. London: Routledge.
- Mäntysalo, R., K. Olesen, and K. Granqvist. 2020. "Artefactual Anchoring" of Strategic Spatial Planning as Persuasive Storytelling'. *Planning Theory* 19(3):285–305. doi:10.1177/1473095219893002
- McCormick, K., S. Anderberg, L. Coenen, and L. Neij. 2013. 'Advancing Sustainable Urban Transformation'. *Journal of Cleaner Production* 50:1–11. doi:10.1016/j.jclepro.2013.01.003
- Miller, C. A., and C. Wyborn. 2020. 'Co-Production in Global Sustainability: Histories and Theories'. *Environmental Science & Policy* 113:88–95. doi:10.1016/j.envsci.2018.01.016
- Moreno, C., Z. Allam, D. Chabaud, C. Gall, and F. Pratlong. 2021. 'Introducing the "15-Minute City": Sustainability, Resilience and Place Identity in Future Post-Pandemic Cities'. *Smart Cities* 4(1):93–111. doi:10.3390/smartcities4010006

- Næss, P. 2001. 'Urban Planning and Sustainable Development'. *European Planning Studies* 9(4):503–24.
- Rapley, T. 2004. 'Analysing Conversation'. *Researching Society and Culture* 2:383–96.
- Rosengren, M. 2022. 'When Infrastructures and Ecological Actors Meet'. *Historical Social Research/Historische Sozialforschung* 47(4):168–92.
- Sandercock, L. 2003. *Cosmopolis II: Mongrel Cities in the 21st Century*. London: Continuum.
- Sandercock, L. 2004. 'Out of the Closet: The Importance of Stories and Storytelling in Planning Practice'. pp. 315–37 In Stiftel, B., and Watson, V. (Eds.). *Dialogues in Urban and Regional Planning*, Volume 1 (1st ed.). London: Routledge.
- Schon, D. A. 1983. *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.
- Smith, R., and A. Wiek. 2012. 'Achievements and Opportunities in Initiating Governance for Urban Sustainability'. *Environment and Planning C: Government and Policy* 30(3):429–47. doi:10.1068/c10158
- Statistics Denmark. 2025. 'Population Figures by Municipality and Region'. <https://www.dst.dk/en>
- Steffen, W., P. J. Crutzen, and J. R. McNeill. 2007. 'The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature'. *Ambio* 36(8):614–21. doi:10.1579/0044-7447(2007)36[614:TAAHNO]2.0.CO;2
- Swyngedouw, E. 2004. *Social Power and the Urbanization of Water: Flows of Power*. Oxford: Oxford University Press.
- Swyngedouw, E., and N. Heynen. 2003. 'Urban Political Ecology, Justice and the Politics of Scale'. *Antipode* 35(5):898–918. doi:10.1111/j.1467-8330.2003.00364.x
- Swyngedouw, E., and M. Kaika. 2000. 'Producing Nature and the Urban: The Political Ecology of the Urbanisation of Nature'. pp. 80–97 in *Urban Nature: Spaces, Ecologies and Politics*, edited by M. Gandy. London: Routledge.
- Swyngedouw, E., and M. Kaika. 2003. 'The Making of "Glocal" Urban Modernities'. *City* 7(1):5–21. doi:10.1080/13604810302220
- Torrens, J., and T. von Wirth. 2021. 'Experimentation or Projectification of Urban Change? A Critical Appraisal and Three Steps Forward'. *Urban Transformations* 3(1):8. doi:10.1186/s42854-021-00025-1
- Turnhout, E., T. Metz, C. Wyborn, N. Klenk, and E. Louder. 2020. 'The Politics of Co-Production: Participation, Power, and Transformation'. *Current Opinion in Environmental Sustainability* 42:15–21. doi:10.1016/j.cosust.2019.11.009
- United Nations. 1987. 'Report of the World Commission on Environment and Development: Our Common Future'. <https://www.are.admin.ch/are/en/home/media/publications/sustainable-development/brundtland-report.html>
- United Nations. 1992. 'Agenda 21: Programme of Action for Sustainable Development'. <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>
- United Nations. 2015. *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York.
- Wakefield, S. 2022. 'Critical Urban Theory in the Anthropocene'. *Urban Studies* 59(5):917–36. doi:10.1177/00420980211045523
- Watson, V. 2014. 'Co-Production and Collaboration in Planning – The Difference'. *Planning Theory & Practice* 15(1):62–76. doi:10.1080/14649357.2013.866266
- Westman, L., and V. C. Broto. 2023. 'Situating Co-Production in Climate Governance: Mapping Discursive Tensions and Civic Imaginaries'. *Urban Studies* 60(8):1441–62.
- Willson, R. 2020a. *Planning with Complexity and Ethics*. London: Planning Press.
- Willson, R. 2020b. *Reflective Planning Practice: Theory, Cases, and Methods*. London: Routledge.
- Yanow, D. 2000. *Conducting Interpretive Policy Analysis*. Thousand Oaks, CA: Sage.
- Yin, R. K. 2018. *Case Study Research and Applications*. Vol. 6. Thousand Oaks, CA: Sage.

2 Aalborg in Transition: Historical Pathways to Sustainability

Enza Lissandrello

Introduction: Transitions to Urban Sustainability

Aalborg's contemporary reputation as a laboratory of urban sustainability is the outcome of a complex and uneven history of spatial development, which has been shaped by shifting political regimes, economic imperatives, environmental pressures, and evolving planning rationalities. Strategically located at the narrowest crossing of the Limfjord, the twin cities of Aalborg and Nørresundby developed along a vital maritime corridor as the fjord's geography both enabled trade and constrained land-based connectivity. These geographical and infrastructural conditions profoundly influenced the urban morphology and governance strategies over time (Aalborg Kommune 1993). From its origins as a fortified trading hub in the 16th century to its consolidation as an industrial powerhouse and, later, its transition to a post-industrial knowledge city, Aalborg's urban transformation has been characterised by cycles of growth, disruption, and institutional learning.

This chapter traces Aalborg's transformation across three interrelated and historically grounded phases, each of which provided both constraints and resources for the emergence of contemporary sustainability initiatives. The first phase (1516–1869) was shaped by ecclesiastical control and feudal urban structures; the second (1869–1970s) was defined by industrialisation and a paternalistic mode of governance; and the third (1970s–1994) was characterised by a period of profound economic and institutional uncertainty. In this phase, classical industrial models collapsed and modernist ideals lost their authority, prompting a search for new directions in local planning and governance. While technocratic approaches persisted, this was also a time of local experimentation, negotiation, and reorientation – setting the stage for the emergence of urban sustainability governance marked by the *Aalborg Charter* (ICLEI 1994). This transformation opened a new phase of democratic experimentation, which will be explored in Chapter 3. To analyse these transitions, the chapter applies the *Urban Sustainability Compass* (Chapter 1) as an interpretive framework. The four key logics – *urgency*, *legitimation*, *implementation*, and *experimentation* – are analytical entry points to uncover how historical contingencies, socio-political dynamics, and institutional arrangements shaped

urban responses to evolving challenges. The central research question guiding this chapter is: *How did the shifting historical conditions and governance rationalities shape Aalborg's transformation towards urban sustainability?*

The argument here is that the Aalborg Charter did not emerge in a vacuum; instead, it was the product of accumulated experience, institutional reform, and discursive shifts that reconfigured both general local governance and Aalborg's position in particular within European sustainability networks. The Charter represented both the culmination of local adaptation efforts and a springboard for future innovation, laying the groundwork for new strategic planning efforts and sustainability frameworks (Chapter 3).

Structure of the Chapter: The chapter unfolds as follows. Section 1 outlines the theoretical and methodological framework that represents the foundation of this analysis. Section 2 reconstructs Aalborg's transformation through historical developments from the early 16th century to the adoption of the Aalborg Charter in 1994. Section 3 analyses the temporalities of urban sustainability, focusing on the rhythms and ruptures of implementation, and synthesises these developments using the *Urban Sustainability Compass* to map interpretive logics across the four historical phases. Finally, Section 4 concludes that Aalborg's past is continuing to shape its sustainability transformation, thereby preparing the ground for new strategic spatial planning strategies (Chapter 3).

Theoretical and Methodological Framework

This chapter adopts an interpretive and historically attuned approach to urban transformation, which is informed by conceptual insights from *sustainability governance*, *urban political ecology*, and *phronetic planning*. It draws on the *Urban Sustainability Compass* (Chapter 1) as its central analytical framework. The Compass identifies four interrelated interpretive logics – *urgency*, *legitimation*, *implementation*, and *experimentation* – which serve as analytical lenses to understand the underlying drivers through which urban sustainability becomes both thinkable and actionable. These logics are not static categories but are historically contingent and context-dependent rationalities that manifest through planning practices, institutional arrangements, and political imaginaries.

Urban political ecology (Heynen, Kaika, and Swyngedouw 2006; Swyngedouw and Heynen 2003) contributes to tracing the co-evolution of nature, power, and the city, particularly in understanding Aalborg's industrial expansion and its socio-environmental legacies. This theoretical perspective situates urban change within broader capitalist and ecological dynamics, thereby highlighting that environmental degradation and social inequality were co-produced. *Just Sustainability* (Agyeman and Evans 2004) complements this analysis by bringing questions of social equity and distributional justice to the fore, which is essential for understanding the normative dimensions of Aalborg's transformation towards sustainability.

Methodologically, the chapter adopts a qualitative and interpretive approach to historical inquiry. It draws on a range of sources, including planning documents, municipal archives, national legislation, academic literature, and local media.

The chapter also engages with work on power and rationality in planning (Flyvbjerg 1991), which is particularly relevant to understanding the contested nature of knowledge production, institutional authority, and public engagement in Aalborg's planning culture, which deeply concerns the transformation. Aalborg's historical governance arrangements do not function as neutral technocratic systems but as arenas of political struggle, strategic action, and situated decision-making.

The empirical narrative proceeds chronologically through three historical phases: Aalborg's pre-industrial development (1516–1869), industrial expansion (1869–1970s), and post-industrial transformation culminating in the Aalborg Charter (1970s–1994). Each phase is analysed through the four interpretive logics of the compass: *urgency* is evident in responses to socio-ecological crises; *legitimation* is found in shifts in planning discourse and civic symbolism; *implementation* is traced through the use of local and municipal planning instruments; and *experimentation* emerges in adaptive spatial strategies and participatory innovations. The chapter prepares the ground for aspects related to planning instruments to move from general strategies to projects and processes, which are the focus of the following chapters.

By applying this analytical framework, the chapter does not aim to construct a deterministic narrative of Aalborg's path to urban sustainability. Instead, it seeks to uncover how Aalborg's transformation has unfolded through the dynamic interplay of historical conditions, governance structures, and spatial imaginaries. Through a historical lens, the chapter conceptualises urban transformation as Aalborg's comprehensive reorientation – from an industrial city to a sustainability-orientated urban landscape. This understanding draws on the distinction established in the literature between *transitions* and *transformations*. While transitions typically denote system-level shifts in technologies, infrastructures, or policy regimes (Bulkeley, Castán Broto, and Maassen 2014; Frantzeskaki 2022; Geels 2002), transformations refer to deeper, structural reconfigurations of urban governance, identity, and socio-spatial form (McCormick et al. 2013; Pelling, O'Brien, and Matyas 2015; Swyngedouw 2010; Wolfram 2016).

In this perspective, urban sustainability is not a fixed goal but a contested and evolving process – constantly made, unmade, and remade through place-specific trajectories of urban and societal change.

The Aalborg Transformation: A Historical Perspective (1516–1994)

This section traces Aalborg's urban development from its early emergence as a fortified market town to its symbolic repositioning as a European leader in sustainability governance. Through three historical phases, the focus is on how

shifting planning rationalities shaped the city's trajectory. Each phase is analysed through the interpretive logics of the *Urban Sustainability Compass*, which reveals how spatial strategies, governance cultures, and institutional arrangements evolved over time. The section concludes with the formulation of the Aalborg Charter in 1994, which represents a milestone that signalled the city's emerging identity as a laboratory for urban sustainability. This moment did not represent a rupture, but rather the consolidation of decades of transformation that reconfigured the political, spatial, and symbolic foundations of planning in Aalborg.

Pre-Industrial Aalborg: From Trade Privileges to a Regional Centre (1516–1869)

Aalborg's urban history spans over a millennium, with archaeological remains at Lindholm Høje, situated just north of Nørresundby, indicating early settlement activity in the 6th century. Strategically situated along the Limfjord, which is a crucial East-West maritime corridor linking the Kattegat to the North Sea, the city emerged as a significant trading hub in Northern Jutland. By 1342, Aalborg had been granted the status of market town (*købstad*) by King Valdemar IV, which formally embedded it within Denmark's feudal and mercantile infrastructure (Aalborg Kommune 2011; Andersen 2013).

Budolfi Cathedral became the seat of a Lutheran bishopric in 1554, following the Danish Reformation, symbolising Aalborg's growing religious and administrative centrality. Earlier still, the Aalborg Kloster (Hospital of the Holy Ghost), which was founded in 1451, played a vital role in the city's social infrastructure (Aalborg Stadsarkiv 2025). Merchant guilds such as *Guds Legems Laug*, which received formal privileges in 1516, further consolidated local economic governance through trade monopolies and guild ordinances.

During the 16th–18th centuries, Aalborg rose to become one of Denmark's foremost provincial cities, its economic profile elevated by the Crown's trade monopoly with Norway. The export of grain, livestock, and herring flourished, which enriched the merchant elite. *Aalborghus Castle*, constructed between 1539 and 1555 under Christian III, reinforced the city's growing administrative significance (Andersen 2013). This was evidenced by architectural landmarks such as *Jens Bangs Stenhus* (built in 1624), an ornate Renaissance-style stone house which served as both a residence and commercial premises. The house was built by Jens Bang, one of Aalborg's wealthiest 17th-century merchants and town councillors. Another iconic structure of that time was *Jørgen Olufsen's House* (built in 1616), which is one of the best-preserved Renaissance merchant houses in Denmark, originally serving as both a residence and warehouse for Jørgen Olufsen, a prominent merchant and later mayor of Aalborg (Aalborg Stadsarkiv 2025). These developments align with broader patterns of Aalborg as one of Denmark's key urban centres during the absolutist era Figure 2.1, which was shaped by increasing bureaucracy and expanding mercantile institutions (Christensen and Mikkelsen 2008; Karpantschov 2018).



Figure 2.1 Aalborg City Map Based on a 1460 Drawing (Aalborg bykort efter gammel tegning, Resen c–x). ↱

Source: Aalborg Stadsarkiv, 851-01B8976.

Yet, this prosperity was intermittently undermined by external disruptions. The County's Feud (constituted in 1534), the Swedish Wars, the British bombardment of Copenhagen in 1807, and the Napoleonic Wars destabilised national trade and depleted economic resilience. Most critically, the Treaty of Kiel (signed in 1814) ended the union with Norway, thereby severing a vital export market and weakening Aalborg's position in regional trade (Mikkelsen 2020).

In 1825, a violent storm surge breached the *Agger Tange* land barrier and permanently opened a westward connection to the North Sea. This transformed the fjord from a closed basin to a through-going straight and significantly altered the region's hydrology and maritime accessibility (Aalborg Stadsarkiv 2023). However, the economic revitalisation it promised was slow to materialise.

The first half of the 19th century was marked by stagnation, limited industrial investment, weak population growth, and underdeveloped urban infrastructure, which left Aalborg trailing behind other emerging Danish industrial cities such as Aarhus (Aalborg Kommune 1987; Steensberg 1971). Aalborg's

municipal government began to play an increasingly central role in urban development from the late 1860s onwards, particularly following Denmark's 1849 Constitution, which established elected local councils. After 1865, the construction of the pontoon bridge and the extension of the railway network in 1869 to Nørresundby repositioned Aalborg as a regional transport hub (Aalborg Kommune 2013). Capitalising on access to natural resources, labour, and logistics marked a decisive shift in Aalborg's identity from merchant town to industrial city (Andersen 2013; Jensen and Richardson 2005).

Aalborg's industrialisation was not merely an economic shift but also a spatial and institutional transformation. The city's morphology evolved from a compact mediaeval core into a more polycentric industrial landscape, structured by factory clusters, zoning logics, and working-class housing (Aalborg Kommune 1987). Yet the emergence of Aalborg as an industrial centre was not simply a matter of functional infrastructure – it also involved the deliberate crafting of civic identity through visual narratives and spatial representation. Similar to Odense's construction of itself as an "ancient and industrious place" (Schjerning 2020), Aalborg leveraged industrial aesthetics and infrastructural landmarks to project a coherent urban identity rooted in industry and regional prominence.

Municipal governance gradually expanded to accommodate urban modernisation, providing basic infrastructure such as sanitation, street lighting, and schooling, though often unevenly and reactively.

In other words, governance responded inconsistently and mostly in response to pressing needs or public pressure, rather than through proactive long-term urban planning (Scott 1998). At the same time, class-based spatial stratification deepened: while the bourgeoisie consolidated in the historic centre and new villa quarters, the working class was housed near industrial zones, particularly in western districts (Aalborg Stadsarkiv 2025).

The rise of industrialists like Poul Pagh (1796–1870), a visionary businessman and politician, played a crucial role in developing Aalborg's commercial infrastructure. Pagh, who was one of the most influential businessmen of the 19th century in Aalborg, was instrumental in expanding port infrastructure and modernising trade practices. His investments in shipping and early industrial ventures laid the groundwork for the city's transformation from a merchant town to a regional industrial powerhouse (Klitgaard n.d.). Prior to the major wave of industrial expansion in the late 19th century, Aalborg's early industrialisation was characterised by small-scale manufacturing enterprises, including distilleries, tobacco processing, textile production, and grain milling, which were closely tied to the city's mercantile traditions and strategic location along the Limfjord (Mikkelsen 2020). This period from the late 18th century to 1869 – date of the construction of the railway – constituted, therefore, a formative epoch of urban transformation. The infrastructural, institutional, and social dynamics established during this period set the trajectory for Aalborg's emergence as a modern industrial city and laid the groundwork for the post-industrial urban transformation explored in subsequent periods.

Industrial Expansion and Urban Consolidation (1869–1970)

Aalborg's industrial transformation accelerated during the 20th century, fundamentally reshaping both its economy and urban form. Central to this development was the rise of major industrial enterprises such as *Aalborg Portland*, *De Danske Spritfabrikker*, and *Nordjyllands Jernbaner*. *Aalborg Portland*, was founded in 1889 by Consul Hans Holm and engineer Frederik Læssøe Smidth on the limestone-rich Rørdal ridge 4 km northeast of Aalborg – its location alongside the Limfjord and immediate access to limestone deposits were pivotal in it becoming one of Europe's largest cement producers, anchoring Aalborg's industrial economy (Cementir Holding n.d.; Mead 1942). *De Danske Spritfabrikker*, established in 1881 as part of a national consolidation of distilleries aimed at streamlining alcohol production and taxation, became a key producer of aquavit and industrial spirits, significantly contributing to Aalborg's manufacturing base. Meanwhile, *Nordjyllands Jernbaner*, created in the late 19th century to improve rail connectivity across Northern Jutland, played a vital role in integrating Aalborg into Denmark's transport and logistics infrastructure, bolstering the city's industrial and commercial expansion.

The availability of local raw materials, access to maritime transportation, and the expansion of rail networks created the necessary conditions for rapid industrial growth. The abundance of gypsum and clay deposits (Aalborg Kommune 1987), combined with the infrastructural development of the railway and port systems, favoured the foundation of the first cement factories. The industrial production of building materials began in 1851 with the founding of the *Vangsminde* brickworks by master mason Niels Peter Vang. The true leap in scale occurred from 1886 onwards with the entrepreneurial initiative of Hans Holm and engineer Verner Frederik Læssøe Smidth, who founded F.L. Smidth & Co. (FLS), a company that would become a global leader in the design and construction of cement plants. Unlike traditional firms, FLS prioritised technological innovation and specialised in the development of turnkey industrial plants, achieving global recognition for its engineering and commercial leadership. Between 1891 and 1913, five major cement factories were constructed near the principal local deposits: *Aalborg Portland in Rørdal* (1891), the Danmark cement near Sohngaardsholm (1899), *Norden in Mølholm* (1901), Nørresundby in *Nørre Uttrup* (1908), and finally *Dansk Andels Cementfabrik* (DAC) in Lindholm (1913). The monumental scale of these facilities and especially their numerous chimneys earned Aalborg the nickname 'the city of smoking chimneys' (*Byen med de rygende skorstene*).

The rapid expansion of the cement sector led to a significant increase in employment and a corresponding demographic boom. However, living conditions for the working class remained precarious: the city lacked adequate infrastructure and services, while workers – mostly young and uneducated – were often employed in strenuous, low-paid jobs and housed in overcrowded and unsanitary conditions. The high proportion of unskilled and sometimes seasonal labour also hindered the development of structured public policies for housing, education, and healthcare. The cement industry left a profound mark

not only on its economic structure but also on the social composition and urban form, becoming a structural component of the city's collective memory and cultural heritage.

Since the late 19th century, three thermal power plants have been constructed in the city to satisfy increasing demands for electricity, technological advancements in energy production, and a gradual shift towards alternative energy sources. The earliest plant, in operation from 1895 to 1909, was coal-fired and located in the city centre of Aalborg. Its location in Doctor's Alley (*Doktorens Gyde*) made coal supply logistics particularly challenging and resulted in significant air pollution in the urban core (Aalborg Kommune 1993). Consequently, this facility was replaced by a second plant, *Nordkraft*, which was constructed in 1909 on the eastern outskirts of the city near the harbour. Nordkraft, also coal-powered, was strategically designed to exploit its proximity to the Limfjord. An internal harbour facilitated the transportation of coal, which was stored in depots along the quays. The machine hall featured red brick masonry, large arched windows, and decorative frescoes depicting mermaids and symbols of electricity, incorporating the emblem of Aalborg (Birket-Smith and Høyer Mikkelsen 2002). Subsequent expansions throughout the 20th century introduced additional boiler halls, steel chimneys, and architectural innovations that reflected changing urban energy needs (Christiansen 2018; Janoušková 2015). In the post-II war period, Danish urban planning was increasingly shaped by functionalist and technocratic rationalities, driven by a growing emphasis on national coordination and spatial ordering. While Aalborg followed its own trajectory as a regional industrial hub, its municipal planning during the 1950s and 1960s reflected broader trends in Danish national spatial governance. The principles articulated in *Storkøbenhavns planlægning* (Byplankontoret 1960), including land-use segregation, infrastructure hierarchies, and the strategic allocation of green and industrial zones, exemplified the state-led modernist ethos that also informed Aalborg's 1956 kommuneplan. These regulatory frameworks reveal how local planning was increasingly embedded in a national system of vertically aligned objectives, preparing the ground for later institutional logics of governance and steering (*rammestyring*).

District heating was introduced in Aalborg as part of broader efforts to modernise urban energy infrastructure and improve air quality. The first significant implementation occurred with the expansion of the Nordkraft power plant in the mid-20th century. However, the most substantial development came with the commissioning of the regional power station in Vodskov in 1967 (*Nordjyllandsværket*). Designed as a combined heat and power plant, it marked a critical shift towards integrated energy solutions capable of serving both electricity and district heating needs. This system allowed Aalborg to reduce its dependence on individual coal and oil heating systems, thereby significantly lowering urban emissions. A third unit, added in 1998, further improved efficiency and capacity and reinforced the role of regional energy distribution. These developments not only reshaped Aalborg's energy profile but also enabled more sustainable urban planning and residential comfort.

The inauguration of a large-scale coal-fired power plant, *Vendsysselværket* in 1967 marked a pivotal moment in Aalborg's energy transition. Constructed on the northern shore of the Limfjord in the municipality of Vodskov, this power plant was designed to serve the broader North Jutland region. With significantly higher capacity, *Vendsysselværket* represented a shift from city-scale production to a more integrated, regional energy grid, reflecting the growing role of district heating and long-distance energy distribution in Denmark's post-war energy policy.

The consolidation of Aalborg's industrial economy and modernised energy provision was paralleled by the spatial reorganisation of the city. Industrial activities became increasingly concentrated along the western and eastern waterfronts, with factory clusters dominating these zones. Workers' housing was constructed in adjacent districts, which were often marked by modest living standards and limited infrastructure (Bender n.d.). Class-based spatial segregation intensified as the bourgeoisie remained concentrated in the historic city centre and emerging villa quarters, while working-class populations settled near industrial zones.

By the early 20th century, national legislation, such as the 1938 Building Act (*Bygningsloven*), had further empowered Aalborg municipality to adopt formal planning tools, thereby institutionalising its influence over infrastructure and land-use decisions.

Public investments focused on transport networks, port development, sewage systems, and electricity supply. Key figures within the municipal council, such as progressive city engineers and planning officials, championed infrastructure modernisation as central to industrial competitiveness. For instance, local plans from the mid-20th century prioritised harbour expansion and the integration of rail and road logistics, thereby aligning urban development with Aalborg's growing role in national and regional supply chains (Holm 1999; Nielsen 2012). Yet, the provision of social infrastructure often lagged behind, particularly in industrial districts. Municipal archives and newspapers from the period document recurrent debates over pollution, poor labour conditions, and inadequate access to housing, especially during the 1960s and 1970s (Aalborg Stadsarkiv 2025).

Industrial labour conditions, particularly in the cement sector, exposed workers to hazardous environments, including persistent exposure to cement dust, silica particles, and chemical by-products. Epidemiological studies (1980s–2000s) have consistently shown elevated incidences of chronic bronchitis, airflow limitation, and hospitalisation due to Chronic Obstructive Pulmonary Disease (COPD) among cement workers in Aalborg and beyond (Fell and Nordby 2017; Mølgaard et al. 2013). These adverse health conditions contributed to rising public concern and gradually influenced the political agenda on workplace safety and environmental regulation.

This period cemented Aalborg's identity as an industrial city. The spatial configuration of the urban structure, which was shaped by logistical imperatives, energy infrastructure, and social stratification, laid the groundwork for both the crises and opportunities of the post-industrial transformation, which are explored in the following section.

Post-Industrial Disruption and the Crisis of Urban Structure (1970s–1994)

The 1970s marked a pivotal turning point in Aalborg's urban trajectory. Following the oil crises of 1973 and 1975 and the subsequent major economic restructuring of Denmark, the industrial backbone that had sustained Aalborg for nearly a century began to crumble. This period was characterised by a sharp contraction in manufacturing, mass layoffs, and factory closures, leading to widespread socio-economic dislocation. Between 1979 and 1987, Aalborg lost approximately 9,000 industrial jobs – a staggering figure for a city of its size – as companies in cement, shipbuilding, textiles, and distilling either relocated, shut down, or drastically downsized (Bender n.d.). This was a period of structural rupture in Aalborg's development. Like many industrial cities across Europe, Aalborg was profoundly affected by the global economic downturn, shifts in production paradigms, and the rising costs of heavy industry. Core sectors such as shipbuilding, cement manufacturing, and the spirits industry (*Akvavit*) – once pillars of the local economy – experienced marked decline due to automation, soaring oil prices, global competition, and environmental regulation (Andersen 2004, 2013). These economic disruptions had immediate spatial repercussions. Large tracts of waterfront land fell into disuse as factories closed or relocated. Former industrial districts – particularly along the Limfjord's eastern and western shores – were characterised by dereliction, underutilisation, and ecological degradation.

Municipal records from the early 1980s describe several former industrial zones in Aalborg as 'urban voids', reflecting a broader post-industrial malaise characterised by underuse, social stagnation, and spatial fragmentation (Aalborg Stadsarkiv 2025). This trend was mirrored in national housing renewal efforts, which by the mid-1980s targeted structurally weak neighbourhoods that planners themselves had identified as marginal or decaying (Social- og Boligministeriet n.d.).

Across Denmark's provincial cities, the late 1980s saw an economic stagnation that hit smaller regional centres like Aalborg particularly hard – resulting in steep unemployment, income disparities, and political contestation about urban governance (Andersen and Nørgaard, 2004). By the 1990s, neighbourhood-level interventions in areas like Aalborg Øst revealed structural problems of marginalisation and social vulnerability that had emerged earlier and persisted into the post-industrial era (Larsen and Andersen 2003).

Yet, within this climate of uncertainty emerged new imaginaries of urban opportunity. Drawing on emergent ideas from international urban discourse, such as adaptive reuse, cultural regeneration, participatory planning, and ecological urbanism, which were gaining traction in comparable post-industrial cities across Europe, local actors, including planners, architects, and civil society groups, began to reframe Aalborg's challenges as opportunities for transformation. This shift entailed reinterpreting the decline of traditional industries and the physical deterioration of former production zones not merely as symptoms of crisis but as latent resources for cultural, ecological, and civic reinvention. Drawing on contemporary urban regeneration discourse, these actors

advanced alternative imaginaries in which obsolete industrial infrastructure could become sites of democratic participation, architectural innovation, and environmental restoration (Byplan 1986). Early proposals envisioned the reuse of industrial heritage, the greening of former factory zones, and the revitalisation of the waterfront as a public and cultural space (Aalborg Kommune 1993).

Experiments in participatory planning also began to surface, albeit unevenly. Influenced by shifts in Danish welfare politics and European sustainability debates, Aalborg's planners explored new forms of dialogue with citizens, thereby setting the stage for more inclusive and adaptive governance models. These initial steps – tentative, contested, and often symbolic – nonetheless marked a departure from the top-down industrial logic that had long dominated urban development in Aalborg.

The 1980s also saw increased academic and professional attention to Aalborg's urban development. Local journals and planning periodicals featured articles debating the future of the harbourfront, the reuse of disused industrial buildings, and the broader question of Aalborg's identity in a post-industrial economy (Arkitekten 1987; Byplan 1986).

Researchers and commentators emphasised the architectural and cultural value of the city's industrial heritage, calling for preservation efforts that could serve both as anchors of collective memory and as catalysts for new urban functions. The role of Aalborg University, which was established in 1974, was also notable as planning scholars began engaging critically with regional development strategies and proposing alternatives grounded in participatory design and spatial justice (Christensen and Nielsen 1985).

Governance during this period was marked by fragmentation and experimentation. While Aalborg Municipality lacked a coherent strategy to address urban shrinkage, individual politicians and municipal departments initiated exploratory projects – often in collaboration with local institutions or cultural organisations – to activate derelict areas. There were early discussions around integrated urban development plans, influenced in part by transnational policy dialogues, including the work of the Organisation for Economic Co-operation and Development (OECD) on urban regeneration in medium-sized cities. Beginning in the early 1980s, the OECD launched comparative studies and policy reviews that highlighted best practices in revitalising declining urban areas, particularly in medium-sized European cities. These initiatives promoted integrated strategies that combined economic development, environmental restoration, and social cohesion (OECD 1983, 1985).

Civil society actors in Aalborg increasingly influenced the urban agenda in the late 1980s and early 1990s, advocating for public access to the waterfront and promoting the adaptive reuse of industrial landmarks as cultural and ecological assets. At the same time, international and Nordic comparisons – particularly with cities such as Gothenburg and Malmö – began to shape local debates. These cities were perceived as mid-sized Nordic exemplars of how industrial decline could be reframed as an opportunity for cultural regeneration and environmentally driven redevelopment (Hall and Vidén 2005; Næss 2021).

Aalborg's transition from a heavy industrial base to a post-industrial city thus mirrors broader Nordic patterns in which derelict industrial landscapes are reimagined through sustainability narratives. Comparable cases, such as the regeneration of the Limhamn quarry in Malmö, illustrate how post-industrial "voids" are selectively reframed as ecological or cultural assets, while simultaneously triggering new socio-spatial inequalities – a process often described as *environmental gentrification* (Sandberg 2014).

In governance terms, this was a period of both uncertainty and experimentation. While formal planning instruments – such as local plans (*lokalplaner*), municipal master plans (*kommuneplaner*), and zoning regulations rooted in the 1938 Building Act (*Byggeloven*) and its subsequent reforms, including the 1975 Planning Act (*Planloven*) – remained legally operative, their limitations became increasingly apparent. The Planning Act of 1975 was introduced to modernise Denmark's fragmented planning system by integrating national, regional, and municipal planning into a cohesive framework (Chapter 3). It was a response to growing concerns about urban sprawl, environmental degradation, and weak public involvement in planning decisions (Linnarsson and Hallenberg 2024). The Act introduced mandatory planning at all levels and emphasised democratic participation, transparency, and environmental protection. It institutionalised the *framework governance principle* (*rammestyringsprincip*), aligning planning hierarchies across administrative levels while requiring that lower-level plans comply with overarching objectives (Post and Dansk Byplanlaboratorium 2011). The law was also shaped by a broader reform agenda that consolidated earlier legislation (Retsinformation 1975) and was influenced by the increasing professionalisation of planning within the Danish central administration (Dansk Byplanlaboratorium 2012). However, while progressive in scope, the Planning Act's regulatory structure proved too rigid to address the complex, fluid challenges posed by deindustrialisation, spatial obsolescence, and socio-environmental crises in Aalborg. As a result, strategic visioning, public dialogue, and flexible land-use frameworks began to supplement traditional regulatory approaches, thereby enabling more adaptive and participatory responses to urban transformation.

The closure of Aalborg Værft in 1987–1988 exemplifies a phase of post-industrial contraction with spatial, economic, and social repercussions. This trend was part of a larger process of *creative destruction* (Olesen and Poulsen 2017), where economic setbacks paradoxically open windows for new entrepreneurial activity and spatial restructuring. Their analysis of emerging "spin-off" firms – rooted in the former shipyard ecosystem – illuminates how Aalborg's urban morphology and governance adapted through emergent local agency, laying the groundwork for regeneration-focused planning strategies explored later in this book. Thus, the 1980s should not be read merely as a period of decline but as a critical incubation phase in Aalborg's sustainability transformation. It was during this time that key actors – including municipal planners, local politicians, academics from Aalborg University, and civil society organisations such as neighbourhood associations and cultural initiatives – reoriented collective

memories and civic capacities around new priorities. Building on the ‘spatial voids’, which were former industrial sites along the Limfjord that had fallen into disuse and dereliction following factory closures in the 1980s and a wave of institutional experimentation, Aalborg Municipality sought to redefine its urban identity in line with emerging international sustainability agendas. Aalborg’s selection as the host city for the 1994 European Conference on Sustainable Cities and Towns – where the Aalborg Charter was adopted – was rooted in this broader context. The Charter itself represented a culmination of institutional experimentation, civic engagement, and strategic planning efforts aimed at repositioning Aalborg as a pioneer in sustainable urban development. It served to institutionalise sustainability principles and give formal structure to initiatives already underway, while also facilitating new cross-sector collaborations and international visibility. This selection was neither incidental nor merely symbolic; it reflected the city’s emerging leadership in local sustainability governance, shaped by a proactive municipal administration, strong academic-municipal partnerships, and active engagement in European networks. The establishment of the *Miljøforvaltning* (Environmental Administration), the integration of sustainability into local planning instruments, and the early embrace of participatory approaches signalled a governance culture aligned with the aims of the conference. Aalborg University provided an intellectual framework through research on environmental policy and urban governance, while the city’s post-industrial transition positioned it as a relevant and relatable case for other European municipalities facing similar challenges (*Aalborg Stiftstidende* 1994c).

Evidence of Aalborg’s early engagement with sustainability and urban regeneration can be found in publications like *Byplan* (Byplan 1986), which featured articles on adaptive reuse and public space, reflecting a critical awareness of post-industrial challenges. These debates laid the intellectual groundwork for strategic rethinking. Further institutional consolidation came with planning tools such as the *Fjordkatalog* (Aalborg Kommune 1999), which formalised the integration of sustainability principles into spatial planning along the Limfjord and proposed the revitalisation of disused waterfronts through ecological and recreational projects. In Aalborg, a discursive turn in urban planning increasingly framed planning interventions in relation to emerging sustainability discourses (Andersen 2013). This involved the strategic use of place narratives – such as Aalborg’s industrial past and waterfront location – to align global sustainability goals with local identity and spatial specificities. Urban projects became not only instruments of physical transformation but also platforms for institutional learning and civic engagement. This was exemplified by project-driven strategies that translated abstract ideals into site-specific interventions along the waterfront (Haagh 2019). The Aalborg Charter emerged from the First European Conference on Sustainable Cities and Towns, which was held in May 1994 at Aalborg Congress & Culture Centre. Organised in collaboration with the ICLEI – Local Governments for Sustainability – the event brought together over 600 participants from 35 countries, including local authorities, NGOs, and EU representatives. The Charter that resulted from

this gathering, formally titled the “Charter of European Cities and Towns Towards Sustainability”, was not only a declaration of intent but also a framework for local action. It served as both a discursive anchor and a governance tool, articulating a new urban imaginary centred on ecological responsibility, participatory governance, and long-term resilience.

At the heart of the Charter was the ambition to reinterpret local governance through the lens of sustainability. Its development was shaped by Aalborg’s involvement in European urban networks, particularly the EU’s Environmental Action Programme and the Local Agenda 21 framework, which provided normative models and institutional support for local sustainability strategies. These transnational frameworks offered Aalborg both visibility and validation, thereby positioning the city as a frontrunner in the emerging European discourse on sustainable urban development (ICLEI 1994).

The local grounding of the Charter was built on several years of strategic preparation and policy innovation and acted as a bridge between the abstract goals of sustainability and the concrete urban challenges facing Aalborg. Drawing on institutional shifts that began in the late 1980s, the city had already begun implementing participatory planning tools and coordinating policies across municipal departments. These efforts laid the foundation for the integration of sustainability into land-use planning and administrative structures, ultimately providing the institutional readiness required to embrace the ambitions of the Charter. Aalborg municipality had already begun experimenting with participatory planning tools and cross-sectoral policy coordination in response to mounting urban challenges. The establishment of the *Miljøforvaltning* and the integration of sustainability into local land-use plans were instrumental in this regard. Researchers at Aalborg University have long engaged in environmental governance and strategic planning, thematically aligned with the principles later articulated in the Aalborg Charter (Aalborg University n.d.).

The content of the Charter reflected the influence of both global sustainability agendas and local political cultures. It endorsed principles of ecological modernisation while also emphasising local democracy, social inclusion, and cultural identity. In doing so, it bridged the normative ambitions of sustainable development with the lived experiences and institutional capacities of medium-sized post-industrial cities. The participatory drafting process, which was an innovation in itself, engaged over 80 European municipalities and helped embed the Charter in broader European policy networks.

Hosting the ICLEI conference marked a discursive break from Aalborg’s industrial past, repositioning the city as a site of experimentation and leadership in sustainability governance. The event catalysed new rounds of local initiatives, including the *Sustainable Aalborg (Bæredygtig Aalborg)* strategy and pilot projects in energy transition, mobility, and public space. These initiatives further entrenched sustainability within the city’s planning culture and institutional architecture, as evidenced by retrospective municipal platforms such as Aalborg municipality’s *Bæredygtig Kommune* portal, which traces the evolution of local sustainability policy from the 1990s onwards.

The Charter thus functioned as both a product and producer of urban transformation: it crystallised years of institutional experimentation and civic reflection, while simultaneously setting the stage for new planning paradigms, policy innovations, and multilevel collaborations. Operationally, the Charter provided a strategic framework that translated abstract sustainability ideals into concrete municipal practices, which ranged from integrated land-use planning and cross-departmental coordination to the embedding of sustainability criteria in project evaluation and public procurement processes. This dual role enabled Aalborg to institutionalise sustainability not just as a vision but as a practical mode of governance. It crystallised years of local reflection and experimentation while setting in motion new trajectories of governance innovation, policy integration, and international collaboration.

Ultimately, the 1994 European Conference on Sustainable Cities and Towns in Aalborg did not so much initiate sustainability-orientated planning as it consolidated and gave international visibility to a gradual reconfiguration of urban governance that had been unfolding since the mid-1980s. This reconfiguration was deeply embedded in Aalborg's local socio-economic and institutional context, yet increasingly informed by transnational environmental discourses and global sustainability agendas. The resulting *Aalborg Charter*, adopted on 27 May 1994, stands as a pivotal articulation of this shift – a policy instrument that symbolically and strategically aligned local planning practices with the emerging paradigm of sustainable urbanism (ICLEI 1994). Its formulation was shaped by prior municipal experiments with participatory and environmental planning, contested media narratives over Aalborg's post-industrial trajectory (Aalborg Stiftstidende 1994a, 1996; Nordjyske Stiftstidende 1995), and broader professional debates on urban restructuring and renewal (Byplan 1986). Furthermore, it resonated with the evolving scholarship on governance and sustainability transitions in European cities (Coenen, Eckerberg, and Lafferty 1999), thereby bridging local practices and global frameworks. Collectively, these processes established the intellectual and institutional foundations that would guide Aalborg's subsequent planning strategies, as explored in the following chapters.

Temporalities of Urban Sustainability Transformation: Mapping the Strategic Shift

This section synthesises Aalborg's urban transformation across the four historical periods analysed – Pre-industrial (1516–1879), Industrial Expansion (1900s–1970s), Post-industrial Transition (1980s–1990s), and the Strategic Turn to Sustainability (1990s) – through the interpretive lens of the *Urban Sustainability Compass*. This framework draws attention to the temporal and spatial dynamics through which sustainability became thinkable and actionable and emphasises the following four interwoven logics: urgency, legitimisation, implementation, and experimentation.

Each period in Aalborg's development articulated a distinct configuration of these logics. During the pre-industrial period, urban change was largely

shaped by external authority and local governance consolidation. The logic of legitimisation dominated, as spatial development served royal, religious, and administrative power, while early forms of implementation emerged in basic infrastructural provisioning. In the industrial era, implementation was largely technocratic and was embedded in the logics of expansion and functional zoning, with physical infrastructure serving national and regional growth agendas. The rhythm of implementation was tied to material production, energy infrastructure, and port logistics, thereby reinforcing a centralised and hierarchical planning model with limited public involvement. This logic of implementation took precedence and was driven by economic urgency and the mobilisation of spatial resources towards production, logistics, and energy infrastructure. Legitimation during this phase was largely technocratic and growth-orientated with limited public deliberation.

The post-industrial transition of the 1980s introduced new forms of urban dissonance and contestation. As key industries collapsed, the urgency shifted from growth to socio-economic and ecological repair. This gave rise to initial experiments in participatory planning, heritage reuse, and ecological remediation. While fragmented and tentative, these efforts marked the emergence of a new logic of experimentation which was grounded in civic imagination and transnational reference points. The 1990s consolidated this trajectory with the formalisation of sustainability governance through the Aalborg Charter. Here, all four logics converged: the urgency of ecological and social degradation, the legitimisation of participatory and multilevel governance, the implementation of cross-sectoral policies, and the experimentation with new planning models and narratives. Across all phases, the temporality of implementation in Aalborg reveals a tension between structural inertia and strategic adaptability.

The evolution of Aalborg's urban trajectory, summarised in Table 2.1, captures the continuity and rupture that shaped the urban transformation towards sustainability. Rather than a linear progression, the process unfolded through moments of crisis and institutional learning, driven by civic mobilisation, ecological degradation, industrial decline, and international engagement. Each period was marked by specific drivers and tensions: institutional authority and civic trust (legitimation), environmental risk and labour exploitation (urgency), municipal infrastructure and regulatory frameworks (implementation), and adaptive planning strategies and pilot interventions (experimentation).

The theoretical perspectives deployed throughout the chapter help to elucidate these dynamics. *Urban political ecology* explains how socio-environmental conditions – such as pollution from cement production or energy infrastructure – produce uneven urban geographies and ecological vulnerabilities. *Just sustainability* underscores the distributive and procedural injustices that shaped spatial segregation and public participation across historical contexts. *Urban sustainability governance* provides insight into the development of local institutions and planning instruments, from early municipal coordination to cross-sectoral policy integration in the 1990s. *Phronetic planning* brings to the fore the role of practical judgement, value-laden decisions, and contested visions of

Table 2.1 The Urban Sustainability Compass Applied to Aalborg's Transformation (Elaboration: Enza Lissandrello) ↵

<i>Phase</i>	<i>Urgency</i>	<i>Legitimation</i>	<i>Implementation</i>	<i>Experimentation</i>
Pre-industrial (1516–1869)	Need for trade infrastructure and urban consolidation driven by mercantile and ecclesiastical interests.	Legitimised through royal privileges and ecclesiastical authority.	Implementation via chartered rights and urban design around monasteries and markets.	<i>Limited</i> – early forms of adaptive reuse and site-specific planning experimentation.
Industrial Expansion (1869–1970s)	Industrial growth, urban migration, and environmental degradation.	Industrial capitalism and national economic planning provided legitimization.	Implemented through national-local coordination, local plans, zoning, and expansion of port and housing.	<i>Little to none</i> – dominance of technocratic and industrial rationalities.
Post-industrial Transition (1970–1994)	Urban decline, deindustrialisation, and unemployment.	Shift towards democratic cultural identity Aalborg Charter, EU frameworks.	Initial strategies, participatory projects, and transitional governance structures.	<i>Competitions</i> – public engagement in planning processes.

the good city. Aalborg revealed how planning rationalities are often entangled with power dynamics, where what counts as 'rational' is determined by those who hold institutional or discursive authority (Flyvbjerg 1998). Aalborg's planning history thus offers a rich case for understanding how power shapes the production of sustainability narratives, policy priorities, and urban imaginaries.

The Aalborg Charter served as both a culmination and a catalyst in this trajectory. It has exemplified that sustainability can become thinkable and actionable through the interplay of urgency (ecological degradation and economic decline), legitimisation (participatory processes and European alignment), implementation (municipal policy reform and institutional reconfiguration), and experimentation (pilot projects and university partnerships).

The Aalborg Charter exposed institutional misalignments and revealed the inadequacy of existing planning tools in addressing urban decline and enabled the emergence of new urban imaginaries – centred on liveability, cultural regeneration, and ecological restoration – that would inform the strategic planning reorientation from the 1990s onwards.

In this sense, the Aalborg Charter did not simply codify sustainability aspirations; it operationalised a new temporal logic of urban transformation that prioritised flexibility, inclusion, and long-term visioning. The adoption of the Aalborg Charter marked a critical inflection point. Urban transformation increasingly became a negotiated and adaptive process, unfolding over extended timeframes through plan strategies, participatory instruments, and experimental governance. The institutionalisation of new planning instruments – such as integrated municipal strategies, thematic action plans, and participatory forums – signalled a shift towards democratic and multi-scalar modes of implementation.

Conclusions: Towards the Activation on the Ground of Sustainable Principles

Aalborg's transformation into a recognised site of urban sustainability innovation is deeply rooted in a complex historical evolution. The overarching narrative on Aalborg's pathway into a sustainability pioneer was not preordained but instead the outcome of layered historical processes, institutional evolution, and multi-scalar engagements. Across the four periods examined, urban structure was shaped by interwoven dynamics of urgency, legitimisation, implementation, and experimentation. Each phase brought new pressures and opportunities, from the centralised spatial strategies of the pre-industrial and industrial eras to the governance ruptures and democratic experiments of the post-industrial 1980s.

The Aalborg Charter served as both a culmination of past developments and a catalyst for future transformation. The urban transformation exemplifies that sustainability became thinkable and actionable through the interplay of urgency (ecological degradation and economic decline), legitimisation (participatory

processes and European alignment), implementation (municipal policy reform and institutional reconfiguration), and experimentation (pilot projects and university partnerships). Such a legacy extended beyond the 1990s, as it continued to shape urban governance frameworks in Aalborg, offering a foundational reference for sustainability-orientated planning across Europe.

This reflection sets the stage for Chapter 3, which examines the emergence of strategic spatial planning in the aftermath of the Aalborg Charter, building on the governance innovations and policy frameworks established in the previous decade.

The Urban Sustainability Compass also foreshadows the contested nature of sustainability governance, which emerged in the post-Charter period. The Aalborg case highlights those discursive commitments to urban sustainability that deserve caution and attention to power asymmetries and debates around democratic legitimacy and technocratic governance.

References

- Aalborg Kommune. 1987. *Henning Bender: Aalborgs Industrielle Udvikling Fra 1735 Til 1940*. Aalborg: Aalborgs Historie, bd. 4, 520 s., ill. *Historisk Tidsskrift*.
- Aalborg Kommune. 1993. *Bykatalog. Aalborg Og Nørresundby Tætbyområde*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 1999. *Fjordkatalog*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2011. *Historisk Atlas: Aalborg*. Aalborg.
- Aalborg Kommune. 2013. *Hovedstruktur 2013 - En Fysisk Vision for Aalborg Kommune*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Stadsarkiv. 2023. *Arkivsamlinger Og Historiske Kort over Aalborg*. Aalborg.
- Aalborg Stadsarkiv. 2025. *Municipal Records Describing Mid 1980s Post Industrial "Urban Voids" in Aalborg [Archival Documents]*. Aalborg.
- Aalborg Stiftstidende. 1994a. 'Aalborg værtsby for bæredygtige bye.' *Aalborg Stiftstidende*. May 17. *Aalborg Stiftstidende*
- Aalborg Stiftstidende. 1994c. 'Grøn Aalborg fremtiden'. *Aalborg Stiftstidende*, May 25. *Aalborg Stiftstidende*
- Aalborg Stiftstidende. 1996. 'Fra fabrik til center for bæredygtighed'. *Aalborg Stiftstidende*, February 27. *Aalborg Stiftstidende*
- Aalborg University. n.d. 'Urban, Energy and Environmental Planning: Programme Overview'. <https://www.en.aau.dk/education/master/urban-energy-and-environmental-planning>
- Agyeman, J., and B. Evans. 2004. "'Just Sustainability": The Emerging Discourse of Environmental Justice in Britain?" *The Geographical Journal* 170(2):155–64. doi: 10.1111/j.0016-7398.2004.00117.x
- Andersen, A. J. 2013. *Urbane Projekter: Mellem, Sted, Diskurs Og Planlægning*. Aalborg: Aalborg Universitet, vbn.aau.dk.
- Andersen, H. T. 2004. 'The End of Urbanisation? Transformation of the Urban Concept'. *Dela* 21:53–67. doi:10.4312/dela.21.53-67
- Andersen, H.T. and H. Nørgaard. 2004. Globaliseringen og de danske byer - påvirkninger og råderum. In Andersen, H. S., and Andersen, H. T. (Eds.). *Den mangfoldige by: Opløsning, oplevelse, opsplitning* (SBI 2004:01). Hørsholm: Statens Byggeforskningsinstitut.
- Arkitekten. 1987. *Temanummer Om Havnefrontens Fremtid*. København: Akademisk Arkitektforening.

- Bender, H. n.d. 'Aalborgs Bydele, Forstæder Og Industri' [Manuscript]. Private Archive.
- Birket-Smith, T., and H. Høyer Mikkelsen. 2002. *Fabrik. Industriens Arkitektur i Aalborg*. København: Fonden til Udgivelse af Arkitekturtidsskrift B.
- Bulkeley, H., V. Castán Broto, and A. Maassen. 2014. 'Low-Carbon Transitions and the Reconfiguration of Urban Infrastructure'. *Urban Studies* 51(7):1471–86. doi: 10.1177/0042098013500089
- Byplan. 1986. *Omstrukturering Og Byfornyelse i Aalborg*. København.
- Byplankontoret. 1960. *Storkøbenhavns Planlægning* [Byplanhistorisk Skrift Nr. 14]. København: Ministeriet for Offentlige Arbejder.
- Cementir Holding. n.d. 'Aalborg Portland: History'. <https://www.cementirholding.com/en/node/699>
- Christensen, P., and E. Nielsen. 1985. *Planlægning Og Regional Udvikling i Nordjylland*. Aalborg: Aalborg University.
- Christensen, S. B., and J. Mikkelsen. 2008. *Danish Towns During Absolutism: Urbanisation and Urban Life 1660–1848*. Aarhus: Aarhus University Press.
- Christiansen, J. H. 2018. *Dansk Betonarkitektur*. Copenhagen: Forlaget Vandkunsten.
- Coenen, F., K. Eckerberg, and W. M. Lafferty. 1999. 'Implementing Local Agenda 21 in Europe: A Cross-National Analysis of 12 National Reports'. In *EURA Conference 1999: Innovations in Urban Governance*. Oslo 22–23 April 1999.
- Dansk Byplanlaboratorium. 2012. *Centraladministration Og Byplanlægning 1938–ca. 1975* [Byplanhistorisk Skrift Nr. 73]. København: Dansk Byplanlaboratorium.
- Fell, A. K. M., and K. C. Nordby. 2017. 'Association Between Exposure in the Cement Production Industry and Non-Malignant Respiratory Effects: A Systematic Review'. *BMJ Open* 7(4):e012381. doi:10.1136/bmjopen-2016-012381
- Flyvbjerg, B. 1991. *Rationalitet Og Magt: Det Konkrete Planlægningsstudie*. København: Akademisk Forlag.
- Flyvbjerg, B. 1998. 'Habermas and Foucault: Thinkers for Civil Society?' *The British Journal of Sociology* 49(2):210–33.
- Frantzeskaki, N. 2022. 'Bringing Transition Management to Cities: Building Skills for Transformative Urban Governance'. *Sustainability* 14(2):650. doi:10.3390/su14020650
- Geels, F. W. 2002. 'Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study'. *Research Policy* 31(8–9):1257–74. doi: 10.1016/S0048-7333(02)00062-8
- Haagh, L. 2019. 'Public State Ownership within Varieties of Capitalism: Regulatory Foundations for Welfare and Freedom'. *International Journal of Public Policy* 15(1/2):153. doi:10.1504/IJPP.2019.099056
- Hall, T., and S. Vidén. 2005. 'The Million Homes Programme: A Review of the Great Swedish Planning Project'. *Planning Perspectives* 20(3):301–28.
- Heynen, N., M. Kaika, and E. Swyngedouw. 2006. *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London: Routledge.
- Holm, P. 1999. *Aalborg og Sofarten 500 År*. Aalborg: Selskabet for Aalborg Historie, Aalborg Historiske Museum.
- ICLEI. 1994. *Aalborg Charter*. <https://iclei-europe.org/publications-tools/?c=search&uid=2K4g4nsA>
- Janoušková, M. 2015. 'Determining Factors in the Conversion of Power Stations. The Case Study of Nordkraft (Aalborg)'. *Stavební Obzor – Civil Engineering Journal* 24(1). doi:10.14311/CEJ.2015.01.0007
- Jensen, O. B., and T. Richardson. 2005. 'Branding the Contemporary City – Urban Branding as Regional Growth Agenda'. In *Plenary Paper for Regional Studies Association Conference "Regional Growth Agendas"*, Aalborg.
- Karpantschhof, R. 2018. 'Denmark 1850–1920: After Absolutism, before Democracy'. In Mikkelsen, F., Kjeldstadli, K., and Nyzell, S. (eds.), pp. 35–71 in *Popular Struggle and Democracy in Scandinavia*. London: Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-57855-6_3

- Klitgaard, C. n.d. 'Poul Pagh'. In S. C. Bech (Ed.), *Dansk Biografisk Leksikon*. Copenhagen: Den Store Danske. Lex.dk. Retrieved June 10, 2025, from https://biografiskleksikon.lex.dk/Poul_Pagh
- Larsen, J. N., and H. S. Andersen. 2003. *Kvarterløft i Danmark: Integreret Byfornyelse i Syv Danske Bydele 1997–2002* [By og Byg Dokumentation Nr. 040]. Hørsholm: Statens Byggeforskningsinstitut, By og Byg. SBI Forlag.
- Linnarsson, M., and M. Hallenberg. 2024. *Nordic Welfare Cities*. New York: Routledge.
- McCormick, K., S. Anderberg, L. Coenen, and L. Neij. 2013. 'Advancing Sustainable Urban Transformation'. *Journal of Cleaner Production* 50:1–11. doi:10.1016/j.jclepro.2013.01.003
- Mead, W. R. 1942. 'Three City Ports of Denmark'. *Economic Geography* 18(1):41–56.
- Mikkelsen, J. 2020. 'The Surrounding Areas of Danish Cities and Towns on the Brink of Modernity'. *Jahrbuch für Geschichte des Ländlichen Raumes* 17:20–38.
- Mølgaard, E. F., H. Hannerz, F. Tüchsen, C. Brauer, and L. Kirkeskov. 2013. 'Chronic Lower Respiratory Diseases among Demolition and Cement Workers: A Population-Based Register Study'. *BMJ Open* 3(1):e001938. doi:10.1136/bmjopen-2012-001938
- Næss, P. 2021. 'Sustainable Urban Planning – What Kinds of Change Do We Need?' *Journal of Critical Realism* 20(5):508–24. doi:10.1080/14767430.2021.1992737
- Nielsen, F. 2012. *Byens Værft: Aalborg Værfts Historie 1912–2012*. Aalborg: Aalborg Kommune.
- Nordjyske Stiftstidende. 1995. 'Aalborg i front for bæredygtige byer'. January 10. *Nordjyske Stiftstidende*.
- OECD. 1983. *OECD Economic Outlook*. 2nd ed. Paris: OECD Publishing.
- OECD. 1985. *OECD Economic Outlook*. 1st ed. Paris: OECD Publishing.
- Olesen, T. R., and R. T. Poulsen. 2017. 'En Krise med Muligheder? Kreativ Destruktion i Dansk Værftsindustri 1980–2013'. *Økonomi & Politik* 90(2):59–70.
- Pelling, M., K. O'Brien, and D. Matyas. 2015. 'Adaptation and Transformation'. *Climatic Change* 133(1):113–27. doi:10.1007/s10584-014-1303-0
- Post, A., and Dansk Byplanlaboratorium. 2011. *Lokalplanlægning i Danmark 2009–2011: Sammenfattende Rapport*. København: Naturstyrelsen.
- Retsinformation. 1975. *Lov nr. 288 af 26. juni 1975 om ændring af forskellige lovbestemmelser i anledning af lov om kommuneplanlægning og byggelov* [Act no. 288 of 26 June 1975 on the amendment of various statutory provisions in connection with the Act on Municipal Planning and the Building Act]. Ministeriet for Fødevarer, Landbrug og Fiskeri. <https://www.retsinformation.dk/eli/lt/a/1975/288>
- Sandberg, L. A. 2014. 'Environmental Gentrification in a Post-Industrial Landscape: The Case of the Limhamn Quarry, Malmö, Sweden'. *Local Environment* 19(10):1068–85. doi:10.1080/13549839.2013.843510
- Schjerning, C. 2020. 'An Ancient and Industrious Place: Visual Geographies and Urban Identity in a Danish Provincial Town, c. 1780–1915'. *Urban History* 47(1):63–85. doi:10.1017/S0963926819000208
- Scott, J. C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Social- og Boligministeriet. n.d. 'Byfornyelse i 1980'erne'. <https://www.sm.dk/media/24843/byfornyesatlas-dk2-1.pdf>
- Steensberg, A. 1971. *Holger Rasmussen: Limfjordsfiskeriet Før 1825. Sædvane og Centraldirigerende. Folkelivs Studier Nr. 2. København 1968. 517 s. Ill. Kort. Historisk Tidsskrift*, 12. København: Nationalmuseet.
- Swyngedouw, E. 2010. 'Impossible Sustainability and the Post-Political Condition'. In: Cerreta, M., Concilio, G., Monno, V. (eds) pp. 185–205 in *Making Strategies in Spatial Planning. Urban and Landscape Perspectives*, vol 9. Dordrecht: Springer Netherlands.
- Swyngedouw, E., and N. Heynen. 2003. 'Urban Political Ecology, Justice and the Politics of Scale'. *Antipode* 35(5):898–918. doi:10.1111/j.1467-8330.2003.00364.x
- Wolfram, M. 2016. 'Conceptualizing Urban Transformative Capacity: A Framework for Research and Policy'. *Cities* 51:121–30. doi:10.1016/j.cities.2015.11.011

3 Strategic Planning for Urban Sustainability

The Aalborg Turn

Enza Lissandrello

Introduction: Aalborg's Strategic Planning, Local Debates and Global Inspiration

The *1994 Aalborg Charter* (ICLEI 1994) marked a transformative shift in the city's planning trajectory, positioning Aalborg as a forerunner in Europe's emerging discourse on sustainable urban development (Lafferty and Eckerberg 2013; Bulkeley and Betsill 2005). More than a symbolic declaration, the Charter catalysed a profound reorientation in urban governance, embedding sustainability into strategic planning practices and institutional reforms (Bulkeley 2022; Evans, Karvonen, and Raven 2016). It laid the foundation for Aalborg's transformation from a post-industrial city into a knowledge-based urban centre defined by public engagement, spatial experimentation, and alignment with evolving European sustainability agendas (Anguelovski et al. 2019).

Although the United Nations Sustainable Development Goals (SDGs) would not be formally adopted until 2015, the *Aalborg Charter* anticipated many of the core principles later articulated in SDG 11 – *Sustainable Cities and Communities* – including integrated planning, inclusive urban governance, and long-term environmental responsibility (United Nations 1992, 1995).

In this sense, Aalborg's strategic orientation in the mid-1990s can be seen as both a local innovation and a precursor to the internationalisation of sustainability as a normative planning framework. This alignment not only legitimised local experimentation but also embedded Aalborg's planning agenda in a broader trajectory of strategic thinking in urban sustainability planning and governance.

This chapter traces the evolution of this shift from aspirational principles to planning strategies and operational processes that have supported the development of urban projects and governance processes.

The analysis follows a chronological structure. It begins with the period immediately after the Aalborg Charter, when Aalborg was awarded the European Planning Prize by the European Council of Spatial Planners (ECTP 1995). This recognition was grounded in innovative local governance reforms such as *Aalborg Bedre By* (*Aalborg Better City*), which introduced planning panels and inclusive debate forums in the early 1990s – an approach documented as part of

a praxis-orientated turn in municipal planning (Flyvbjerg 1998). This participatory momentum culminated in the *Bykatalog* (*City Catalogue*) (Aalborg Kommune 1993), the first mid-city development catalogue. The *Bykatalog* marked a pivotal shift in municipal planning rhetoric – from *mere by* (*more city/urban expansion*) to *Bedre By* (*better city*) – signalling Aalborg’s early embrace of participatory, quality-driven spatial governance. It laid the groundwork for the more formalised and sustainability-orientated strategy *Byens mål – Aalborg og Nørresundby Bykatalog* (*City Goals – Aalborg and Nørresundby City Catalogue*) (Aalborg Kommune 2000), which further consolidated Aalborg’s evolving governance approach. While the *Bykatalog* established principles of design quality, compact development, and participatory governance at the mid-city scale, the next step involved addressing Aalborg’s larger territorial challenges along the Limfjord.

The *Fjordkatalog* (Aalborg Kommune 1999) marked a broader strategic and territorial shift in Aalborg’s sustainability planning. Whereas the *Bykatalog* had focused on design quality and compact urban form within the inner city, the *Fjordkatalog* targeted the post-industrial waterfronts along the Limfjord as a testing ground for *integrated regeneration*, combining ecological restoration, public access, and cultural redevelopment. Developed through extensive citizen dialogue and stakeholder engagement, it proposed new fjord parks, harbour promenades, and mixed-use urban districts, reflecting Aalborg’s evolving ambition to reconnect the city with its waterfront.

The early conceptual and spatial efforts of the *Bykatalog* and *Fjordkatalog* gradually evolved into broader institutional strategies, climate action frameworks, and participatory tools – anchoring sustainability not merely as a planning goal but progressively embedding it within Aalborg’s municipal governance culture in the years that followed.

The chapter addresses the following research question: *How were the principles of the Aalborg Charter translated into spatial strategies, institutional reforms, and governance practices in the decades following its adoption?*

In responding to this question, the chapter demonstrates that Aalborg’s approach to sustainability was shaped by evolving planning cultures, institutional capacities, and multilevel governance dynamics. This trajectory involved both critical reflections on earlier planning models and the gradual institutionalisation and adaptation of strategies in response to emerging sustainability imperatives.

Through the interpretive lens of the *Urban Sustainability Compass* (introduced in Chapter 1), Aalborg’s planning trajectory is examined as a movement from abstract sustainability principles towards their institutional articulation, progressive embeddedness, and material expression in urban planning practices over time.

Structure of the Chapter: The chapter unfolds in four sections. *Section 1* introduces the theoretical and methodological framework underpinning the analysis. *Section 2* sets the historical and institutional context for the Aalborg Charter, tracing how its principles were progressively embedded into the

municipality's planning strategies. *Section 3* examines the temporalities of this integration process and provides an interpretive synthesis through the *Urban Sustainability Compass*, mapping the evolving logics and theoretical perspectives that have shaped Aalborg's strategic planning approach. *Section 4* concludes by reframing the institutional and strategic drivers that have guided Aalborg's post-Charter trajectory, laying the groundwork for the urban transformation initiatives explored in the subsequent chapters of the book.

Theoretical and Methodological Framework

This chapter builds directly on the conceptual foundations established in Chapter 1. Employing the *Urban Sustainability Compass* introduced therein, it examines Aalborg's strategic reorientation towards urban sustainability in the decades following the adoption of the Aalborg Charter in 1994. The Compass – structured around the four interpretive logics of *urgency*, *legitimation*, *implementation*, and *experimentation* – provides a situated and processual lens for analysing how sustainability principles have been institutionalised, adapted, and enacted within planning practice. As argued earlier (Chapter 1), these logics are mutually constitutive, reflecting the contingent ways in which sustainability transformations unfold through competing priorities, shifting narratives, and evolving governance capacities (Flyvbjerg 1998; Lafferty and Eckerberg 2013).

Complementing this heuristic framework, the chapter mobilises four interrelated theoretical perspectives: *urban political ecology*, *sustainability governance*, *just sustainability*, and *phronetic planning*. From an urban political ecology perspective, sustainability imaginaries are seen as deeply entangled with political and spatial struggles over resources, infrastructures, and socio-environmental visibility (Heynen, Kaika, and Swyngedouw 2006). The *sustainability governance* lens highlights the dynamics of multilevel coordination, institutional learning, and knowledge co-production as constitutive elements of urban transitions (Bulkeley and Betsill 2005). *Just sustainability* underscores that sustainability transitions must not only address environmental and economic dimensions but also advance equity, social justice, and inclusivity in decision-making and outcomes (Agyeman 2013). *Phronetic planning* mobilises both a critique of power-laden planning rationalities and a generative framework that emphasises reflexivity, value-rationality, and context-sensitive judgement in shaping sustainability-orientated decision-making (Flyvbjerg 2001).

In addition, the chapter draws on *strategic spatial planning* (Healey 2004, 2007), which links to these theoretical perspectives an insight into planning not as a linear, technocratic procedure but as a *relational and interpretive process* where spatial imaginaries are co-constructed through dialogue, storytelling, and institutional practices. Healey's work is particularly relevant here because it contributes to framing planning instruments – such as Aalborg's *Bykatalog* and *Fjordkatalog* – not merely as regulatory tools, but as *discursive arenas* through which governance capacities are mobilised and shared visions are negotiated. This perspective underscores how Aalborg's planning trajectories

towards urban sustainability have been shaped by iterative processes of meaning-making, institutional learning, and stakeholders' engagement, all of which are central to understanding how the Aalborg Charter principles were translated into practice.

Methodologically, the chapter adopts a historically informed and document-based analysis, drawing on key municipal strategies and planning instruments developed in the aftermath of the Aalborg Charter. Crucially, these include the *Bykatalog*, the *Fjordkatalog*, and the *Growth Axis* (*Vækstaksen*) strategies. While the *Bykatalog* (Aalborg Kommune 1993) addressed inner-city design quality and compact urban form, and the *Fjordkatalog* (Aalborg Kommune 1999) marked a strategic ecological expansion along the Limfjord waterfront, the *Growth Axis* – outlined in the *Planstrategi 2011* as *Norddanmarks vækstdynamo* (The Growth Engine of Northern Denmark) – unified these spatial logics into a broader territorial development corridor linking the airport, harbour areas, city centre, and the new university hospital district (Aalborg Kommune 2011). The Growth Axis strategy concentrated investments in infrastructure, cultural facilities, and knowledge-based urban development, aligning economic regeneration with sustainable mobility and compact urban growth (Aalborg Kommune 2019).

Similarly, Aalborg's participatory agenda extended beyond formal planning documents through innovative civic engagement tools. The *Flower of Sustainability* visually translated abstract Charter principles into accessible dialogue prompts, while interactive formats such as participatory games and the Sustainability Festival provided recurring platforms for co-creation among citizens, schools, businesses, and the municipality. The Sustainability Festival – highlighted in *Planstrategi 2016* as a key instrument of Aalborg's Local Agenda 21 implementation – became a living laboratory for sustainability awareness and behavioural change, engaging residents in activities spanning renewable energy, waste reduction, and sustainable mobility (Aalborg Kommune 2016a, 2016b).

This locally grounded approach has increasingly aligned with broader European and global sustainability agendas. Aalborg's current planning strategies actively reference the European Green Deal and the EU's mission-orientated framework for Climate-Neutral and Smart Cities while maintaining a strong commitment to citizen engagement and co-production. This evolving relationship between local initiatives and supranational policy underscores how Aalborg's post-Charter trajectory continues to bridge the *local and the global*, translating abstract European and international sustainability ambitions into context-specific governance practices and territorial strategies.

Yet this alignment also surfaces governance challenges, including the pressure to meet supranational performance metrics, the risk of symbolic compliance rather than substantive transformation, and the persistent need to balance global ambitions with locally situated knowledge, equity concerns, and capacity constraints. Aalborg's post-Charter trajectory thus reflects both the potential and paradoxes of urban sustainability, showing how abstract European and international sustainability ideals are translated into context-specific – and sometimes contested – governance practices and territorial strategies.

While this section focuses primarily on the conceptual and methodological framing, a reference to specific strategic instruments and initiatives exemplifies the types of processes through which the principles of the Aalborg Charter were translated into practice and therefore serves as an illustrative reference point for understanding the chapter's methodological approach. By situating the theoretical lenses in relation to concrete planning strategies and participatory tools, the next section demonstrates the relevance and applicability of the conceptual framework and prepares the ground for the more detailed empirical analyses.

Setting the Stage: The Aalborg Charter as a Strategic Turning Point

Since the 1970s, Denmark's spatial planning system has been governed by the Danish Planning Act (*Planloven*), which decentralised responsibilities across national, regional, and municipal levels, emphasising democratic participation, transparency, and legal accountability. This framework positioned municipalities as the key actors in physical planning, supported by institutionalised consultative procedures. Within this enabling context, Aalborg Municipality gained significant autonomy to develop context-sensitive, cross-sectoral planning and governance approaches (Andersen and Pløger 2007; Sørensen and Torfing 2007). In the early 1990s, debates over Aalborg's waterfront intensified as deindustrialisation created vacant spaces and civic concern over urban decline. Civil society groups, businesses, and residents proposed diverse futures – from continued industrial use to cultural, residential, and knowledge-economy functions – leading to a hybrid governance model blending local participation and municipal strategies (Aunsborg and Sørensen 2008; ESPON/ENSURE 2020).

Yet Aalborg's planning culture faced critique. Bent Flyvbjerg's *Rationality and Power* (1998 [orig. 1991]) revealed the dominance of technical rationality and elite decision-making, highlighting tensions between strategic ambitions and democratic practices. This contributed to broader debates on governance renewal and civil society's role in urban development.

In response, the municipality adopted more participatory approaches. Initiatives such as *Bedre By* (*Better City*) and the co-creation processes behind the *Bykatalog* (Aalborg Kommune 1993) opened planning to public dialogue and local knowledge. These local dynamics laid the groundwork for the Aalborg Charter in 1994, launched during the First European Conference on Sustainable Cities and Towns as both a local initiative and a pan-European response to the 1992 Rio Earth Summit. The Charter introduced a new vocabulary of integration, participation, and vision, catalysing a shift from sectoral policy-making to strategic, sustainability-orientated planning.

Institutionally, the Aalborg Charter led to the city's first Local Agenda 21 strategy and the creation of cross-departmental sustainability units. Politically, it aligned Aalborg with European agendas on subsidiarity and urban innovation, embedding the city within emerging networks of sustainable cities. More

than a starting point, the Charter consolidated ongoing local experimentation and became a reference for institutionalising participatory governance and sustainability-orientated planning narratives.

These narratives were progressively embedded through a series of strategic instruments. The *Bykatalog* (Aalborg Kommune 1993) first framed sustainability through urban quality and compact development in the historic centre, followed by the *Fjordkatalog* (Aalborg Kommune 1999), which extended these principles to the ecological and cultural regeneration of the Limfjord waterfront. *Planstrategi* 2000 and 2004 then formalised sustainability as a guiding principle in municipal governance, promoting cross-sectoral coordination and participatory approaches. *Vision 2025* (Aalborg Kommune 2013) articulated longer-term ambitions for climate responsibility, spatial cohesion, and inclusive growth, later expanded by *Vision 2035* (Aalborg Kommune 2021b).

A major inflection came with *Planstrategi 2011* (Aalborg Kommune 2011), which introduced the *Growth Axis* (*Vækstaksen*) as Aalborg's principal spatial development corridor. Designed to link the university and hospital districts in the east with industrial and business areas in the west, the Growth Axis concentrated urban development, infrastructure, and mobility, aligning densification with transit-orientated development and later supporting initiatives such as the +BUS, the Bus Rapid Transit (BRT) system, and green infrastructure corridors (Aalborg Kommune 2011, 2019). Together, these strategies illustrate how sustainability evolved from a set of broad commitments into a progressive narrative shaping urban form, governance practices, and long-term development visions.

Subsequent plans such as *Planstrategi 2016* (Aalborg Kommune 2016a) and the *Climate Plan 2021–2030* (Aalborg Kommune 2021a) expanded strategic planning in Aalborg with a sharper focus on CO₂ reduction, climate adaptation, and the integration of green–blue infrastructures. *Fysisk Vision 2035* (Aalborg Kommune 2021b) consolidated this trajectory into a long-term physical development vision, reaffirming the *Growth Axis* as the structural spine for aligning housing, mobility, land use, and climate goals. Most recently, *Planstrategi 2023* (Aalborg Kommune 2023) reaffirmed these commitments by aligning Aalborg's planning agenda with the UN Sustainable Development Goals, national climate neutrality targets, and the Aalborg Conditions (Aalborg Kommune 2024) – a new local framework for democratic sustainability governance.

The institutional legacy of the Aalborg Charter thus paved the way for a new phase of urban governance, marked by the consolidation of sustainability within municipal structures and strategic planning orientations.

The Bykatalog as an Innovative Planning Instrument

As a strategic response to economic crisis, urban degradation, criticism of prevailing planning orientations, and the impetus provided by the Aalborg Charter, the municipal administration reorientated its urban policy towards creating a

Bedre By (“better city”) – one focused on enhancing the quality of the existing urban fabric and leveraging latent development opportunities within consolidated urban areas. This shift was also driven in the early 1990s by a slowdown in new housing construction, a growing citizen preference for central living, and declining investment in peripheral neighbourhoods. Simultaneously, industries and financial institutions were downsizing and vacating centrally located sites, which opened up new possibilities for transformation.

Real estate actors began redirecting investments towards deindustrialised port zones and central infill areas, developing housing, offices, and commercial spaces. A compact urban form was increasingly regarded as more sustainable than peripheral growth, offering lower infrastructure costs and reduced transport distances that favoured walking, cycling, and public transport. These principles were later reinforced by planning scholars (Næss 1993, 1995) who advocated compact urban development as a pathway to environmental and social sustainability.

In response to these dynamics, Aalborg Kommune published the *Bykatalog* in December 1993 – *Bykatalog: Bedre By. Aalborg og Nørresundby Tætby* (*City Catalogue: Better City. Aalborg and Nørresundby Compact City*). This strategic document replaced the 1986 municipal plan for the central city while maintaining the old plan for peripheral zones. It introduced a new planning framework based on densification, mixed-use urban regeneration, and strong collaboration with citizens and stakeholders (Aalborg Kommune 1993).

The *Bykatalog* was structured around three overarching goals: (1) enhance development opportunities in central areas, (2) improve urban quality, and (3) create a greener, more ecological city. These goals were elaborated through six thematic visions: *The Active City*, *The Beautiful City*, *The Green City*, *The Environmentally Responsible City*, *Quality Housing*, and *Cooperation among Municipality, Businesses, and Citizens*. Each theme included objectives, possible actions, and priority projects. These were accompanied by general and localised regulatory guidelines addressing building design, land use, and the interface between public and private space.

The *Bykatalog* marked a deliberate break from Aalborg’s technocratic and functionalist planning tradition. It was conceived as a participatory agreement between the municipality, businesses, and civil society. The document emerged from extensive public consultation, which encouraged stakeholders to articulate aspirations and ‘wish lists’ rather than simply reacting to predefined plans. This approach helped align public interests with the implementation capacity of municipal and private actors.

The shift towards co-production was further institutionalised through *planning panels* (*planlægningspaneler*) and follow-up documents, including the *Hovedtillæg til Bykataloget* (*Main Supplement to the City Catalogue*) published in 1997, which refined parking standards and confirmed the operational integration of the *Bykatalog* into Aalborg’s planning system. This confirmed its legal and procedural role beyond being merely a visionary document.

The participatory discourse surrounding the *Bykatalog* also extended into public debates about Aalborg's waterfront. In 1994, Danish newspapers reported controversies around the mooring of the cultural vessel *M/S Stubnitz* in the harbour, revealing growing public interest in reclaiming the waterfront for cultural and civic use. These themes were further institutionalised in *Aalborg Havnefront – til debat* ("Aalborg Harbourfront – for Debate") produced as part of the consultation process for *Jomfru Ane Parken* (Aalborg Kommune, 2024) (see Chapter 4).

The *Bykatalog* was also defined as a discursive and strategic tool in Aalborg's transformation (Andersen 2013), highlighting its narrative framing as an experimental governance instrument that has entailed planning panels and regeneration strategies in Nørresundby. Later studies (Næss & Jensen 2002) further situated Aalborg's transformation within the broader European planning discourse on compact, sustainable urbanism.

The Fjordkatalog and Spatialising Sustainability

Building on the momentum of the *Bykatalog*, the City of Aalborg developed a more comprehensive strategic instrument – *Fjordkataloget* (Aalborg Kommune 1999) – to spatialise sustainability across the broader Limfjord territory. This planning tool addressed the post-industrial waterfronts of Aalborg and Nørresundby as part of an integrated urban–fjord ecology. Conceived as a response to the limitations of earlier sectoral approaches, it recognised that redevelopment along the fjord could not be decoupled from environmental, landscape, and rural policy considerations.

The idea for the *Fjordkatalog* was introduced by Aalborg City Council in 1996 as a follow-up to the *Bykatalog* and launched for public debate in 1998 under the campaign *Byen og Fjorden* (*The City and the Fjord*). The process was participatory from the outset: citizens received preparatory booklets and draft catalogues, fjord cruises and public meetings were organised, and feedback was processed in dialogue with landowners, harbour businesses, and civic stakeholders (Aalborg Kommune 1999). A second consultation round in 1999 coincided with debates on the *Green Structure Plan*, the *Traffic and Environment Action Plan*, and the forthcoming *Municipal Spatial Plan* (*Kommuneplan*). The final *Fjordkatalog* was approved by Aalborg City Council on 13 December 1999 and subsequently integrated into the municipal plan (Aalborg Kommune 1999, 2011).

The *Fjordkatalog* elaborated a comprehensive redevelopment vision for the fjord area, combining short-term interventions in decommissioned industrial zones with long-term strategies for areas expected to become available later. It distinguished between *urban segments*, with dense buildings and infrastructure, and *landscape segments*, characterised by open natural or agricultural land, aiming to maintain clear transitions between city and fjord to avoid urban sprawl. Strategic projects included the port areas between the railway and road

bridges in Aalborg, the DAC district, and Nørresundby's central port. Long-term visions encompassed the transformation of *Kemira*, the slaughterhouse site, *Nordkraft*, and the adaptive reuse of the *Spritten* factory. The plan also earmarked sites for new cultural and educational facilities to reinforce Aalborg's regional role, while safeguarding space for environmentally responsible business development, housing, and extensive public recreation.

Equally important, the *Fjordkatalog* promoted stronger physical and symbolic connections between the waterfront and the inner city. It proposed removing barriers and introducing pedestrian promenades, open watercourses, fjord stairways, and boat-access facilities. It further suggested reorienting buildings towards the fjord to create a continuous urban frontage, complemented by a design manual for architectural quality and public realm improvements. By linking ecological restoration, industrial heritage reuse, and urban regeneration, the *Fjordkatalog* (Figure 3.1) became a foundational strategy for sustainable waterfront transformation and a precursor to later integrated spatial plans (Andersen 2016; Thomsen 2020).

Fjord coast

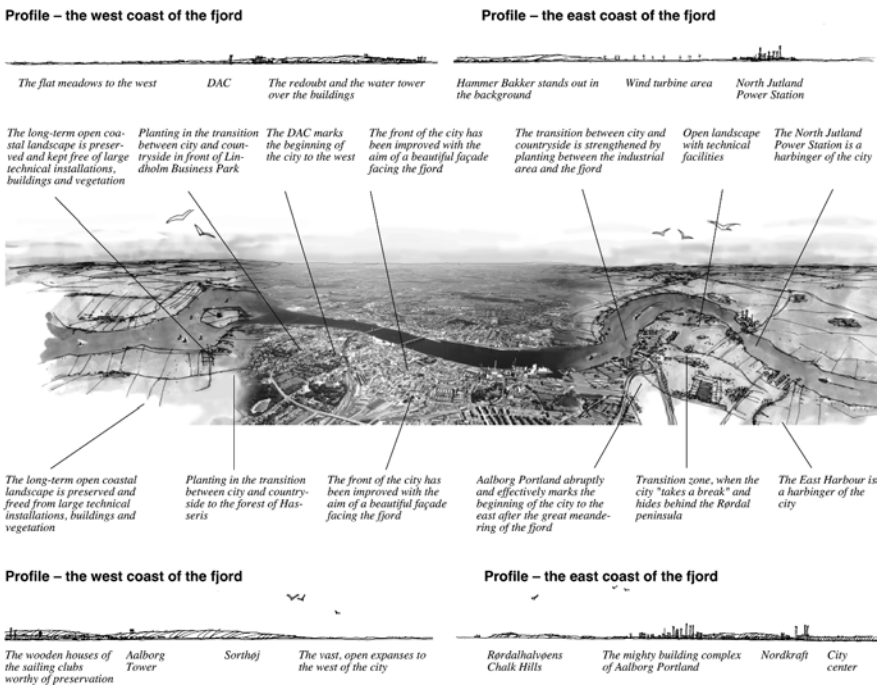


Figure 3.1 Fjordkatalog. ↻

(Graphic elaboration: Alessandra Badami. Source: Aalborg Kommune, 1999).

The catalogue further developed a network of fjord parks as part of the city's green–blue wedge system, explicitly linking the *Fjordkatalog* to the *Green Plan Catalogue (Katalog over Grønne Områder)* (Aalborg Kommune 1999). In the western fjord landscape, conservation measures prioritised wetlands, grazing meadows, and migratory bird habitats. In the eastern fjord, where industrial functions persisted, new development was permitted only conditionally under environmental and landscape guidelines, including buffer zones and native vegetation to mitigate wind and salt exposure.

Waterfront parks were envisioned to include 'support points' (*støttestrukturer*) – multifunctional recreation hubs with moorings for small boats, campfire sites, shelters, and interpretive signage – designed to serve school groups, scouts, and eco-tourism initiatives (Aalborg Kommune 2011).

Cultural events, notably the 1999 *Tall Ships Race*, animated this emerging spatial vision and generated public enthusiasm for waterfront regeneration (Landis 2022; Wouters 2022). This momentum built on the strategic frameworks introduced earlier – particularly the *Fjordkatalog* – which had already initiated a broader rethinking of the city-fjord relationship. The plan emerged from a two-stage participatory process, including fjord cruises, public meetings, and workshops that directly shaped the draft and final versions. It introduced the idea of a *rhythm between urban and landscape segments*, maintaining clear transitions between dense waterfront areas and open fjord meadows. It also highlighted key industrial landmarks, such as the DAC silos and Aalborg Portland facilities, as cultural markers to be integrated into the evolving cityscape.

At the same time, growing public and political appreciation for Aalborg's industrial heritage inspired preservation and adaptive reuse strategies. *Nordkraft*, once a coal-fired power plant, transformed into a flagship cultural centre, illustrating how industrial memory was reframed as part of Aalborg's cultural identity and sustainability narrative (Andersen 2013). The *Fjordkatalog* also prioritised adaptive reuse of Kemira, DAC, and Spritten, alongside creating fjord parks at Lindholm, Hesteskoen, and Egholm, with fjord trails connecting neighbourhoods.

These developments exemplified the city's approach to integrating memory, place, and innovation into its sustainability agenda, extending the ambitions of previous strategic instruments into tangible cultural infrastructure.

Aalborg's Strategic Instruments for Sustainability in the 2000s

As Danish spatial planning shifted towards more strategic forms of urban governance in the early 2000s (Box 3.1), Aalborg positioned itself at the forefront of national and international experimentation (Evans et al. 2021; Torrens and von Wirth 2021). Engagement with EU cohesion policies, pilot projects, and transnational municipal networks during this period embedded sustainability as both a normative goal and an operational framework (Hickmann 2021). Aalborg's strategic planning evolution can be broadly understood in three

Box 3.1 The Evolution of Denmark's Planning System ↱

Denmark's planning tradition began with the 1947 *Fingerplan*, promoting transit-oriented development and regional coordination. This approach was formalised in the 1975 Planning Act (*Planloven*), which introduced a three-tier system and codified public participation. The 2007 Municipal Reform radically reshaped the system: municipalities gained expanded powers, regions were consolidated, and statutory regional planning was abolished. This decentralisation empowered cities like Aalborg but also introduced governance tensions between local autonomy, national interests, and coordination across scales.

Source: Peder Baltzer Nielsen (2024) Democratic reconstruction of Ukraine.
Elaboration: Enza Lissandrello.

phases. In the early 2000s, municipal planning moved beyond rigid land-use regulation towards more visionary and flexible approaches, reflected in flagship regeneration projects that combined waterfront redevelopment, green infrastructure, and sustainable mobility initiatives. These projects were not just spatial interventions but governance experiments integrating compact urbanism, sustainable transport, and participatory planning (Hodson, Evans, and Schliwa 2018; Madanipour and Hull 2017).

The second phase followed the 2007 *Danish Municipal Reform*, which reshaped planning competences by strengthening the municipal level while reducing regional planning authority. Municipalities gained broader responsibilities for managing rural landscapes, environmental planning, and cross-sectoral challenges, making the municipal plan a central tool for integrating local visions with national legislation (Grindsted, Larsen, and Jensen 2024; Klein, Juhola, and Landauer 2017).

The most recent phase emerged from 2010 onwards, marked by the introduction of the *Planstrategi* as an adaptive, visionary framework replacing static master plans. *Planstrategi 2011* further reinforced this shift by introducing the *Growth Axis* (*Vækstaksen*) as Aalborg's primary development corridor and framing it as Northern Denmark's growth dynamo (Aalborg Kommune 2011). This strategy concentrated investment along a linear corridor linking the city centre, harbourfronts, the university, and the new hospital, while also emphasising sustainable mobility, cultural heritage reuse, and blue-green networks. Importantly, it promoted *broad sustainability* by integrating environmental, social, economic, and cultural values into decision-making.

Successive planning strategies maintained this participatory and adaptive orientation, with digitalised municipal plans and regular updates reinforcing flexibility and long-term vision (Aalborg Kommunec 2021b). While these reforms enabled Aalborg to align land use, mobility, climate adaptation, and

economic development, they also raised new tensions around accountability, spatial justice, and the role of private actors (Jönsson and Baeten 2024). Aalborg's experience illustrates how strategic planning evolved from regulatory control to a facilitative mode that combines urgency, legitimation, implementation, and experimentation (Haughton et al. 2010).

From the Growth Axis to Planstrategi 2023: Strategic Urban Sustainability

Following the 2007 Danish Municipal Reform and the institutional consolidation of Aalborg Kommune, the city's planning culture entered a new phase shaped by the integration of sustainability into strategic planning (Miljøministeriet 2006; Roodbol-Mekkes and van den Brink 2015).

This shift was marked by a move from rigid regulatory frameworks towards adaptive governance tools and visionary agendas, reflecting broader trends in Danish and European spatial planning (Nadin and Fernández-Maldonado, 2023).

A pivotal outcome of this shift was the introduction of the *Vækstaksen* (Growth Axis) in *Planstrategi 2011*, a spatial and governance framework that subsequently informed four consecutive Planstrategier adopted in 2011, 2016, 2019, and 2023 (Aalborg Kommune 2011, 2016a, 2016b; Aalborg Kommune 2019, 2023).

Planstrategi 2011: Establishing the Growth Axis

A defining feature of Aalborg's strategic turn was the formulation of the *Vækstaksen* (Growth Axis), formally introduced in *Planstrategi 2011*. Described as '*rygraden i byens udvikling*' – the development backbone of Aalborg – the Growth Axis concentrated more than half of the municipality's jobs and the majority of planned investments in infrastructure, culture, housing, and urban regeneration (Aalborg Kommune 2011). Stretching from Aalborg Airport and Lindholm Brygge in the northwest, through the historic city centre and waterfront, to the University, and the new University Hospital in Aalborg East, it linked the city's most significant development zones into a single coherent spatial corridor. This strategic vision was intended to spatially coordinate employment, education, housing, and sustainable mobility within a unified planning framework.

The Growth Axis was embedded within a broader conceptual vision that highlighted the need to strengthen transport connections locally, nationally, and internationally, while simultaneously enhancing the city's cultural vibrancy, heritage reuse, and urban quality. It also sought to secure Aalborg as a good place to live throughout life, integrating diverse housing types and maintaining green–blue structures. At the heart of this approach was the principle of *bred bæredygtighed* – broad sustainability – which framed environmental, social, economic, and cultural considerations as interdependent dimensions of urban development (Aalborg Kommune 2013).

Along this spatial corridor, a series of flagship nodes were identified as key drivers of investment and regeneration. Aalborg Airport, Nørresundby's waterfront, Nordkraft, Musikkens Hus, the Utzon Center, Karolinelund, Godsbanearialet, Eternitten, Gigantium, Aalborg University, and the University Hospital were conceived as interconnected anchors, each contributing to a vision of Aalborg as both a compact city and a vibrant cultural and knowledge hub. By concentrating diverse functions and investments within a clearly defined geography, the Growth Axis became a tangible framework for implementing densification while avoiding peripheral sprawl.

Mobility was central to this strategy. The Axis was envisioned as the backbone for a high-capacity public transport system, initially planned as a light rail and later adapted into the +BUS Bus Rapid Transit (BRT) line inaugurated in 2023. This transit corridor linked major development sites and illustrated the integration of sustainable mobility and land-use strategies while improving access for pedestrians and cyclists (Andersen 2013; Thomsen 2020).

Beyond physical infrastructure, the Growth Axis was designed to strengthen social and spatial integration. Affordable housing projects and urban renovation efforts along the corridor, especially in Aalborg East, supported the creation of mixed-income communities and the revitalisation of disadvantaged neighbourhoods. These interventions were coordinated through *Lokalplaner* and embedded within the overarching strategic framework of the *Kommuneplan* and the *Planstrategier*, ensuring consistency between long-term visions and local planning actions.

The Growth Axis also functioned as a spatial narrative and governance tool. Acting as both a symbolic and practical framework, it mobilised political support, enhanced interdepartmental coordination, and engaged citizens, businesses, and cultural institutions in shaping the city's future. As a *boundary object* (Mäntysalo, Olesen, and Granqvist 2020), it allows sustainability principles to be translated into concrete urban policies and design interventions. In this way, it operationalised the normative commitments of the *Aalborg Charter* and successive *Planstrategier*, linking abstract sustainability goals with the day-to-day realities of municipal governance and project implementation (Haughton et al. 2010).

However, the implementation of the Growth Axis was not without challenges. Balancing long-term ambitions with short-term political and economic pressures required careful negotiation, and despite the reduced influence of regional development plans after the 2007 Municipal Reform, these continued to shape funding flows and priorities. Aligning local visions with broader governance frameworks, therefore, remained essential (Klint et al. 2010; Reimer, Getimis, and Blotevogel 2014).

The Growth Axis (Figure 3.2) encapsulates Aalborg's evolution in strategic urban planning during the 2010s. It demonstrates how a visionary, spatially anchored strategy can simultaneously function as a governance mechanism, an investment framework, and a means of securing public legitimacy during a period of administrative and socio-economic transformation.

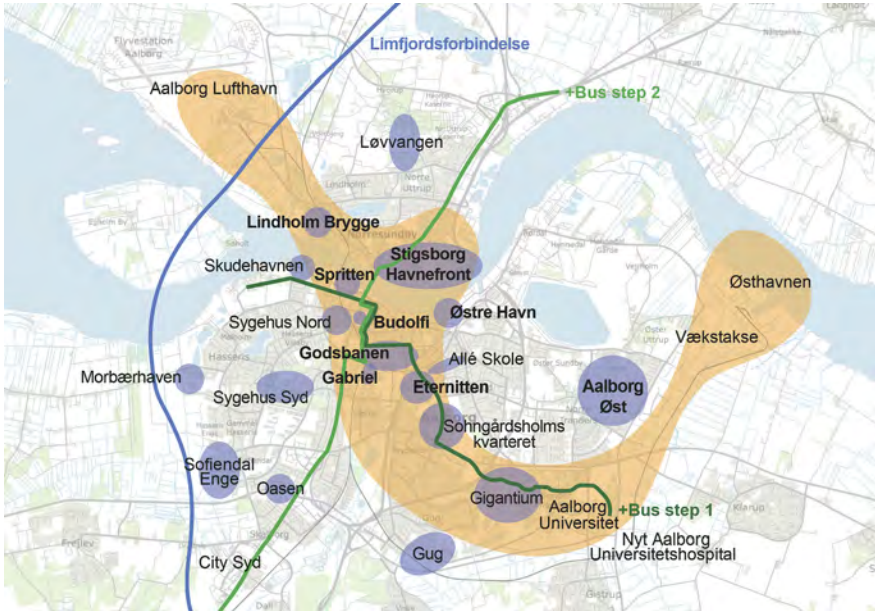


Figure 3.2 The Growth Axis and its Public Transport Backbone. ↵

(Graphic elaboration: Alessandra Badami. Source: Aalborg Kommune, 2019).

Vision 2025: A Long-Term Framework for Sustainable Urban Transformation

Introduced in 2013 through *Hovedstruktur 2013 – en Fysisk Vision 2025 for Aalborg Kommune* (Aalborg Kommune 2013), *Vision 2025* established a long-term strategic horizon to guide Aalborg's spatial and governance priorities. It was conceived as a framework for ensuring quality of life, advancing climate responsibility, and strengthening the city's innovation capacity. The vision articulated four interconnected domains of development: spatial coherence, sustainable mobility, liveability, and economic vitality.

Vision 2025 was not designed as a rigid blueprint but as a flexible and adaptive narrative capable of evolving with changing societal and environmental conditions. It promoted densification within clearly defined urban corridors, prioritised low-carbon mobility systems, and supported mixed-use environments that enhance social cohesion and environmental performance. Aalborg Kommune operationalised the vision through successive *Planstrategier* – 2011, 2016, 2019, and 2023 – embedding its principles into both long-term governance and concrete urban transformation projects (Aalborg Kommune 2016a, 2019, 2023).

Central to Vision 2025 was the Growth Axis (Vækstaksen), framed as the geographic and conceptual backbone of Aalborg's development. It linked densification, public transport, and knowledge-based growth along a coherent urban corridor stretching from Aalborg Airport and Lindholm Brygge,



Figure 3.3 Sustainability Flower Process. ↱

(Source: Inspired by Plan & Byg. (2011). *Bæredygtighedsblomsten*. Scribd. Retrieved September 11, 2025, from <https://www.scribd.com/document/340085779/BæredygtighedsblomstenAalborg>; elaboration: Enza Lissandrello).

through the city centre and waterfront, to Aalborg University and the new University Hospital in Aalborg East. The Axis concentrated public and private investments in housing, education, culture, and infrastructure and was supported by new mobility systems, such as the Plusbus Bus Rapid Transit (BRT) line, to integrate sustainable mobility with land-use strategies.

The vision embedded sustainability across multiple dimensions. Environmental sustainability was expressed through compact development, climate-adaptive infrastructure, and low-carbon mobility. Social sustainability focused on quality of life, liveability, affordable housing, and inclusivity, while economic sustainability emphasised knowledge-driven growth, innovation, and partnerships between Aalborg University, the business sector, and municipal governance. In this way, Vision 2025 operationalised the city's sustainability agenda in alignment with the Aalborg Charter, the Aalborg Commitments, and the UN Sustainable Development Goals (SDGs) (Aalborg Kommune 2013, 2016b).

Vision 2025 explicitly relied on co-creation with residents, developers, and institutions, reinforcing shared responsibility for shaping Aalborg's future. Regional media such as *Nordjyske Stiftstidende* reflected both civic enthusiasm and public debate around densification, housing affordability, and the environmental impacts of urban intensification. Despite contestation, the vision retained broad political support and became the cornerstone for major investments and policy decisions, positioning Aalborg as a frontrunner in strategic spatial planning and sustainable urban development (Haughton et al. 2010).

This framework did not remain static but evolved into *Fysisk Vision 2035 – mod det gode liv og en bæredygtig fremtid* (Aalborg Kommune 2020). Vision 2035 expanded and deepened the priorities set in 2025. It placed greater emphasis on biodiversity and nature-based solutions, integrating wetlands restoration, climate adaptation measures, and blue-green infrastructure into the city's fabric. It strengthened the compact city model, prioritising transformation and densification within existing urban areas – especially along the Growth Axis – before considering peripheral expansion. It reinforced the concept of Aalborg as a small yet vibrant regional city with 'quality and edge' (kvalitet og kant), focusing on social sustainability through mixed housing, inclusive neighbourhoods, and the prevention of socio-economic segregation.

Vision 2035 also redefined mobility ambitions by planning for a future +BUS2 corridor to complement the original Growth Axis, reinforcing high-capacity public transport as the structural spine of sustainable mobility. Aalborg's role as a *regional dynamo* was underlined, integrating cultural, educational, and economic functions to strengthen the competitiveness of Northern Denmark. Furthermore, the vision broadened partnerships for the green transition, explicitly linking municipal strategies with Green Hub Denmark, Aalborg University, and local businesses to promote climate innovation and green industrial transformation.

Through this continuity, Aalborg's strategic visions demonstrate a progressive, evolutionary approach. Vision 2025 provided the initial long-term spatial and sustainability framework, while Vision 2035 extended its logic by embedding biodiversity, social equity, and climate adaptation more deeply into urban policy. Together, they show how visionary, spatially anchored strategies can balance immediate urban demands with a forward-looking resilience agenda, ensuring coherence between governance, investment priorities, and sustainability transitions.

Planstrategi 2016: Reinforcing Strategic Sustainable Urbanism

Planstrategi 2016 – Vækst, Trivsel og Det Grønne (Growth, Well-being and the Green) marked a qualitative deepening of Aalborg's sustainability agenda. Adopted in August 2016, it reaffirmed Aalborg's role as *Norddanmark's growth dynamo* while explicitly shifting the narrative from 'more growth' to

better growth – placing greater emphasis on the balance between economic development, environmental protection, and human well-being (Aalborg Kommune 2016b).

The strategy introduced a *value-based framework* structured around three strategic domains: *Responsible Growth, Well-being, and the Green*. It operationalised these themes through the so-called *Aalborg Dogmas*, a set of guiding principles for municipal development. These dogmas emphasised that growth must create *quality* – not only in the built environment but also in social life and nature. In other words, the dogmas reinforced support for the *Growth Axis*, the development of high-capacity public transport (+BUS), and a commitment to liveability, attractive public spaces, and compact urban regeneration (Aalborg Kommune, 2016b, 2017b). One of the core innovations was the focus on *integrated solutions* (“*guldnet*”) that transcend traditional sectoral silos. Instead of pursuing fragmented policies, the municipality sought to combine physical, social, and green initiatives, thus achieving synergies between mobility, housing, biodiversity, and well-being. The plan stressed that urban development must always weigh *responsible growth against environmental capacity and human needs*, moving away from a purely quantitative model of expansion to a qualitative approach that enhances local identity and community resilience.

Regional collaboration also became a strategic dimension. The plan highlighted Aalborg’s interdependence with surrounding towns and rural areas in Norddanmark, aligning urban strategies with the *Byregion Norddanmark* agenda and the collaborative platform *Business Region North Denmark*. This recognised that Aalborg’s prosperity depended on strong regional networks and complementary urban–rural relations, while also addressing demographic challenges such as ageing populations and out-migration from smaller settlements.

Social sustainability was strengthened through a *housing and liveability agenda* that targeted diverse life phases and socio-economic groups. The plan responded to changing demographics – such as the rise of single households and international students – by calling for affordable housing, centrally located rentals, and mixed-tenure neighbourhoods. It linked well-being (*trivsel*) with public health, mental well-being, social inclusion, and access to urban nature.

Environmental sustainability received renewed focus through *Det Grønne (the Green)*. The plan introduced a more ambitious blue–green infrastructure strategy that blended recreation, biodiversity, and climate adaptation. It advocated integrating ‘the built and the grown’ (*det byggede og det groede*) as complementary systems, bringing wild biodiversity and climate solutions into the urban core. This reflected a shift from seeing green spaces purely as aesthetic or recreational to recognising their ecological and climate-adaptive value (Aalborg Kommune, 2016b). The municipality also redefined its own role. Instead of acting only as a regulator, Aalborg Kommune increasingly became a *facilitator and partner (samskabelse)*, co-creating solutions with businesses, residents, and institutions. This was exemplified by aligning the strategy (Planstrategi 2016) with a set of operational goals for CO₂ reduction, social equity, and innovation.

The 2016 strategy was further supplemented in 2017 with a targeted update responding to national planning law reforms. It introduced provisions for coastal tourism development and adjustments to holiday home zoning, while also addressing strategic urban sites like Stigsborg Havnefront and Dybbroparken (Aalborg Kommune 2017a, 2017b).

In the same period, Aalborg launched its Global Goals Strategy, integrating the United Nations' 2030 Agenda and 17 Sustainable Development Goals (SDGs) into local governance. This ensured that the *Kommuneplan* and *Planstrategi* aligned with international sustainability frameworks while remaining rooted in local priorities.

This period marked a consolidation of strategic spatial planning through boundary-spanning governance and sustainability-led transformation (Olesen, 2020; Thomsen, 2020). The Growth Axis remained both a narrative device and a spatial framework, aligning transport, welfare policy, land use, and climate adaptation under a single cohesive vision.

The adoption of *Planstrategi 2016* represented a critical juncture in Aalborg's strategic planning trajectory because it redefined the purpose and scope of municipal growth. Unlike earlier strategies that focused primarily on competitiveness and physical regeneration, the 2016 plan explicitly reframed development as a value-driven process centred on integrated, boundary-spanning governance, embedding sustainability across housing, mobility, biodiversity, and public health. By introducing the *Aalborg Dogmas* and aligning local priorities with the *Bæredygtighedsstrategi 2016–2022* and the UN Sustainable Development Goals, the municipality linked its strategic planning tools to a broader global sustainability framework. This period also consolidated Aalborg's role as a *facilitator and co-creator* rather than merely a regulator, fostering partnerships with citizens, businesses, and regional actors. In doing so, *Planstrategi 2016* became more than a technical planning instrument: it was a *cultural and institutional shift* that integrated the Growth Axis narrative with new social, environmental, and regional responsibilities, setting the stage for Aalborg's subsequent climate-orientated and SDG-aligned planning strategies (Aalborg Kommune, 2016b; Olesen, 2020; Thomsen, 2020).

Planstrategi 2019: Scaling Up Towards Vision 2025

By the time *Planstrategi 2019* was adopted, Aalborg's planning culture had matured into a distinctly strategic mode anchored in the long-term ambitions articulated by *Vision 2025*. Building directly on the pathways set by the 2011 and 2016 strategies, this plan reaffirmed the centrality of the *Growth Axis*, the spatial spine along which densification, public transport, and social infrastructure had been gradually consolidated. The Axis continued to serve not only as a developmental corridor but also as a narrative anchor for integrated urban governance, linking mobility, housing, cultural projects, and climate resilience.

What distinguished *Planstrategi 2019* was its explicit framing of *ansvarlig vækst* (responsible growth) as the overarching principle guiding Aalborg's spatial development. Rather than treating growth as an end in itself, the strategy emphasised that urban expansion must balance economic ambitions with climate adaptation, energy transition, and social inclusion. Under this framing, sustainability objectives – such as carbon neutrality, energy-efficient buildings, green–blue infrastructures, and digital innovation – were formalised as integral components of spatial planning instruments (Aalborg Kommune 2019).

The strategy was introduced under the guiding motto '*Vi udvikler by med kvalitet – sammen*' (*Let's develop a city of quality together*), encouraging stakeholders – from developers and technical consultants to citizens – to take shared responsibility for high-quality urban growth. This motto was deeply tied to the participatory *DNA Aalborg* vision, which defined five guiding principles (*pejlemærker*): *alle kan noget* (everyone can contribute), *med gode forbindelser* (strong connections), *med store oplevelser* (great experiences), *i grøn balance* (in green balance), and *i fællesskab* (in community). These principles made clear that physical development should also nurture social cohesion, cultural vibrancy, and environmental balance. *Planstrategi 2019* consolidated the spatial framework of the *Growth Axis*, stretching from Aalborg Airport in the northwest to Aalborg University and the new University Hospital in the east. This corridor encompassed key redevelopment areas like the waterfront, Godsbanen, Eternitten, and Gigantium, where new urban functions, mixed housing, and public amenities were planned. Along this Axis, the +BUS line 1 – a high-capacity Bus Rapid Transit (BRT) route – was introduced as the new lifeline of sustainable mobility, linking dense nodes to public transport. The plan also anticipated a +BUS 2 corridor, reinforcing sustainable mobility as the structural backbone for future development and ensuring that densification remained well-connected and climate-friendly.

The plan paid particular attention to *social sustainability* in response to demographic pressures. Aalborg's population was growing by more than 2,000 residents annually, driven by students, professionals, and families relocating from the hinterland, alongside the rapid expansion of Aalborg University. To address housing pressures and demographic change, the strategy promoted diverse, affordable housing along the Growth Axis, ensuring proximity to services, public transport, and educational institutions. By concentrating new developments in central areas, the municipality aimed to strengthen place identity, public health, safety, and social cohesion while reducing sprawl. Environmental and climate sustainability were strengthened further through *blue–green infrastructure* and nature-based solutions for flood management, biodiversity enhancement, and recreational value. Climate neutrality was reframed as a shared municipal commitment, with seven selected *UN Sustainable Development Goals (SDGs)* embedded directly into the strategy, paving the way for a full *Bæredygtighedsstrategi 2020–2024* (Sustainability Strategy) (Aalborg Kommune 2019).

Institutionally, the *Planstrategi 2019* reinforced a governance model that combined continuity with adaptability. Rather than a full overhaul of the municipal plan, Aalborg Kommune opted for targeted thematic *delstrategier* (sub-strategies) to adjust policies iteratively. This flexible approach allowed the city to respond to emergent challenges such as climate risks and demographic shifts without destabilising long-term goals. The strategy emphasised *cross-sectoral alignment*, digital tools for participatory planning, and co-governance with citizens, businesses, and regional actors like *Business Region North Denmark* and *Green Hub Denmark*.

Analysts have described the *Planstrategi 2019* as a pivotal moment bridging the *corridor-based development* of the 2010s with the more systemic, integrative ambitions of *Vision 2025* and beyond (Mäntysalo et al. 2020). Its implementation also reflected Aalborg's ability to align municipal investments with national and EU funding streams, supporting flagship projects like the +BUS system and climate adaptation initiatives while consolidating Aalborg's position as a leading municipality in Denmark's sustainability transition.

Planstrategi 2023: A City in Transition

Planstrategi 2023 – By i Forandring (City in Transformation) marks Aalborg's latest step in a long trajectory of strategic urban governance. It builds on the foundations of *Vision 2025* and earlier strategies, but it also reflects a new phase of planning in what the document calls a *brydningstid* – a time of disruption and transition. Aalborg is now confronted by overlapping systemic challenges: accelerating climate change, demographic shifts, economic restructuring, resource scarcity, and the aftershocks of global crises. The strategy acknowledges that these challenges demand more than incremental adjustments; they require integrated solutions and adaptive governance. Approved in 2024 after extensive public debate, it explicitly positions Aalborg as a frontrunner in Denmark's green transition, determined to remain in the *grønne førertrøje*, the 'green leader's jersey', of sustainable urban development (Aalborg Kommune 2024).

While *Planstrategi 2019* introduced the notion of *ansvarlig vækst* (responsible growth), the 2023 strategy reframes this principle within the broader context of a green and just transition. It aligns Aalborg's urban development with the Danish Climate Act targets for 70 per cent CO₂ reduction by 2030 and climate neutrality by 2050, while also embedding the ambitions of the EU Green Deal. The plan sets a clear agenda for the period 2024–2028, emphasising the need to manage moderate population growth, address demographic change, ensure affordable housing, and accelerate climate adaptation. At its core, the strategy links everyday life with sustainability by focusing on what it calls a *bæredygtig hverdag* – sustainable everyday life – where proximity, accessibility, and compact urban form shape the future of the city.

Urban quality is a recurring theme, framed as *kvalitet i byudviklingen* (quality in urban development). Rather than prioritising expansion, the strategy promotes densification before sprawl, adaptive reuse of buildings, circular

resource use, and nature-based solutions that integrate biodiversity and blue-green infrastructure into the urban fabric. The Growth Axis remains central as Aalborg's conceptual and spatial backbone. Yet its function has expanded beyond a development corridor: it now integrates the energy transition, biodiversity restoration, and the creation of inclusive urban spaces. Key projects such as Stigsborg, Denmark's largest coastal urban development, are positioned as models for climate-adaptive and socially inclusive neighbourhoods, combining affordable housing, green mobility, and social infrastructure. Mobility is reframed as an essential enabler of a just transition. *Planstrategi 2023* reaffirms Aalborg's +BUS Line 1 as the backbone of sustainable mobility and anticipates a second high-capacity corridor, +BUS Line 2, which will further strengthen low-emission transport and connect new areas of densification. Soft mobility solutions, including cycling superhighways and pedestrian-friendly streetscapes, are integrated with the city's broader spatial and climate strategies.

The plan deepens Aalborg's commitment to environmental and social sustainability. It calls for large-scale restoration of carbon-rich lowlands (*lavbunds-jorde*), new urban wetlands, and multifunctional climate streets (*klimagader*) that manage stormwater while enhancing biodiversity and recreational value. At the same time, it addresses rising social inequality and housing pressures by promoting a diversity of housing forms, inclusive neighbourhoods, and new local meeting places that foster community, mental well-being, and public health. Vulnerable areas such as Grønlandskvarteret and Løvengen are prioritised for regeneration, reflecting a renewed focus on social cohesion and equitable access to services.

The 2023 strategy also recognises Aalborg's evolving regional and economic role. As the innovation hub of Northern Denmark, Aalborg is positioned to drive the green transition through partnerships with *Business Region North Denmark* and *Green Hub Denmark*. New strategic growth zones near the airport, harbour, and hospital are designated for clustering green technologies, logistics, and health innovation, consolidating Aalborg's position as a centre of green business development.

Institutionally, *Planstrategi 2023* embodies a deeply collaborative model of governance. The municipality shifts further from being a traditional regulator to acting as a facilitator of partnerships. It explicitly calls for *samskabelse*—co-creation—between municipal departments, civil society, developers, and businesses, recognising that systemic challenges require collective problem-solving. The strategy also emphasises digitalisation as a governance tool, integrating data-driven planning and digital citizen engagement to ensure transparency, adaptability, and participatory decision-making.

Finally, the plan articulates seven interlinked planning priorities: sustainability, social cohesion, knowledge and education, welfare innovation, climate resilience, democratic inclusion, and digital transformation. These priorities extend beyond conventional land-use considerations, linking spatial planning to public health, education, energy, social services, and civic engagement. Aalborg's planning instruments – *Kommuneplaner*, *Planstrategier*, and

Box 3.2 The Aalborg Charter: Local Action for Global Sustainability ↱

Adopted in 1994 during the first European Conference on Sustainable Cities and Towns, the *Aalborg Charter* translated global sustainability goals into actionable local governance. Inspired by Agenda 21 and the 1992 UN Earth Summit, it promoted participatory planning, long-term visioning, and place-based strategies. Signed by over 80 cities, the Charter positioned Aalborg as a frontrunner in sustainable urban development and shaped its planning tools, policies, and experimental initiatives.

Source: ICLEI, 1994. Elaboration: Enza Lissandrello.

Lokalplaner – are presented as complementary layers of a flexible governance architecture that allows for adaptive responses while maintaining long-term strategic coherence.

In reflecting on Aalborg's trajectory, the *Planstrategi 2023* signals a clear shift towards *systemic transition thinking*. It moves beyond the corridor-based strategies of the 2010s to embrace a more integrated approach where energy, climate, biodiversity, social equity, and digital transformation are treated as interdependent systems. By embedding the values of the Aalborg Charter (Box 3.2) – democracy, sustainability, and integration – into everyday governance, the strategy links local ambitions with regional and global frameworks. In doing so, it closes the gap between visionary rhetoric and operational action, showing how a medium-sized city can navigate complex transitions through a mix of spatial narratives, collaborative governance, and adaptive planning tools (Aalborg Kommune, 2024).

From Strategy to Practice: Embedding Sustainability through Institutional Learning and Planning Instruments

Aalborg's transition from abstract sustainability principles to tangible urban transformation has been shaped by iterative institutional learning, strategic experimentation, and adaptive planning instruments. Over time, the evolution of planning strategies (*Planstrategier*) reflects shifting urban priorities and the refinement of cross-sectoral governance mechanisms for sustainability. Strategic municipal visions such as *Vision 2025* provided the normative and strategic anchors for these processes, connecting local planning to earlier frameworks such as the *Aalborg Charter* (1994), the *Aalborg Commitments* (ICLEI, 2004), (Box 3.3) and global agendas like the *UN Sustainable Development Goals* (*SDGs*) (Box 3.4). Through these frameworks, Aalborg demonstrated a sustained commitment to translating international objectives into local planning practices, embedding sustainability as a shared municipal value and public ethos.

Box 3.3 The Aalborg Commitments: From Vision to Action ↩

Adopted in 2004, the *Aalborg Commitments* transformed the aspirational goals of the Aalborg Charter into a structured, action-oriented framework. Organised around ten thematic areas—from governance and mobility to resource use and consumption—the Commitments enabled cities to set targets, monitor progress, and share practices. For Aalborg, they deepened the institutionalisation of sustainability, reinforced its leadership role in Europe, and promoted policy integration and accountability.

(Source: ICLEI, 2004. Elaboration: Enza Lissandrello)

Box 3.4 The SDGs: A Global Framework for Local Sustainability ↩

Since their adoption in 2015, the UN Sustainable Development Goals (SDGs) have offered a global framework for guiding local action. For Aalborg, the SDGs - especially SDG 11 on Sustainable Cities - have reinforced ongoing efforts toward inclusive, resilient, and environmentally responsible urban development. SDGs have encouraged measurable planning, cross-sector collaboration, and policy innovation. International events in Copenhagen have further anchored Denmark's commitment, highlighting the catalytic role of cities in linking climate action with sustainable development.

(Source: United Nations A/RES/70/1 General Agenda - 21 October 2015. Elaboration: Enza Lissandrello)

To operationalise these ambitions, Aalborg Kommune developed planning tools that could support implementation and foster institutional learning. Among the most notable was the *Sustainability Flower* (*Bæredygtighedsblomsten*), introduced in 2011 as a dialogue-based evaluation and planning tool. Conceived to bridge the gap between abstract sustainability goals and practical urban development, the Flower addressed the limitations of earlier sustainability discourse, which had been dominated by a narrow ecological focus. While environmental protection was central, such a reductive framing overlooked dimensions critical to urban life – such as social cohesion, spatial justice, liveability, and cultural identity.

The Sustainability Flower offered a *holistic framework integrating environmental, social, economic, technical, and process dimensions of sustainability*. Inspired by the DGNB certification system but adapted to Aalborg's context, its five petals represented key sustainability themes – environment, social,

economy, process, and technical. Each petal included criteria that demonstrated how different dimensions intersect: for example, biodiversity improvements affecting both the urban environment and social aspects of public health. The Flower thus became a *dialogue tool* for early collaboration among municipal planners, clarifying and prioritising sustainability goals collectively for specific sites (Aalborg Kommune 2011).

The tool was applied in major projects such as *Østre Havn* (Chapter 4), *Eternitten* (Chapter 6), and *Aalborg East* (Chapter 7). In these cases, it helped planners and stakeholders co-create *place-based sustainability narratives* that respected local identities and needs, while embedding clear sustainability criteria into local plans (*Lokalplaner*). Evaluations showed that the Flower facilitated interdisciplinary communication, supported a shared vocabulary for negotiating synergies and conflicts, and improved the alignment between local projects and broader strategic frameworks.

Beyond its technical application, the Flower also evolved into a *participatory and gamified tool* for communities, making sustainability a topic of accessible dialogue. It was sometimes used in workshops and community meetings, where residents actively prioritised sustainability themes for their neighbourhoods. Through such iterations, the Flower helped embed sustainability thinking horizontally across municipal departments and vertically between strategic visions and implementation.

The Flower did not exist in isolation but was complemented by cultural and educational initiatives that embedded sustainability into citizens' everyday lives. One of the most notable was the *Aalborg Sustainability Festival* (*Bæredygtighedsfestival*), launched in the mid-2010s as a public platform to raise awareness and engage residents in sustainability practices. The festival combined exhibitions, interactive workshops, debates, guided city walks, and demonstrations of green technologies, bridging technical sustainability knowledge with citizen experiences. It created a 'living laboratory' for sustainability, where schools, NGOs, businesses, and municipal departments co-created activities that illustrated how climate adaptation, waste reduction, green mobility, and energy efficiency could be incorporated into daily routines.

These initiatives anticipated what is now recognised in European urban governance as *Local Green Deals* – place-based governance models that translate the EU Green Deal into local action through co-creation, cross-sectoral collaboration, and cultural engagement (ICLEI, 2024). Aalborg's approach exemplified this logic well before it became a European policy discourse, combining technical planning tools like the Flower with participatory cultural platforms like the festival to align local everyday practices with broader climate and sustainability goals.

Together, these instruments linked strategic visions and planning tools with *citizen-orientated sustainability practices*. By combining participatory instruments like the Flower with public-orientated platforms like the Sustainability Festival, Aalborg cultivated a broader sustainability culture that transcended technical planning processes. While the Flower itself is no longer actively used, its principles live on in emerging frameworks such as Aalborg's *Climate Plan 2021–2030* and the *Aalborg Conditions* (2024) (Box 3.5).

Box 3.5 The Aalborg Conditions: Toward a Just and Cohesive Urban Transition ↩

Adopted in 2024 at the 10th European Conference on Sustainable Cities and Towns, the *Aalborg Conditions* renew the call for transformative urban change. Emphasising shared governance, integrated finance, and institutional collaboration, they advocate for bottom-up leadership and cross-sector coordination. Central to *Vision 2024* is a just and inclusive transition—where social cohesion becomes a defining pillar of sustainable urban development across Europe.

(Source: ICLEI 2024. Elaboration: Enza Lissandrello)

(Chapter 8). These newer tools build on the Flower’s dialogical ethos and the festival’s engagement model, advancing a learning-orientated governance approach capable of addressing complex and systemic urban challenges.

The Temporalities of Implementation: From Principles to Reflexive Strategic Planning

The evolution of Aalborg’s planning strategy since the mid-1990s is best understood as a layered and iterative process, rather than a linear progression. Sustainability was not simply declared through the *Aalborg Charter* in 1994; rather, it became gradually operationalised through a sequence of spatial strategies, institutional adaptations, and planning instruments that reflected shifting interpretive



Figure 3.4 The Urban Sustainability Compass applied to Aalborg’s Strategic Sustainability. ↩

(Concept and design: Enza Lissandrello; visual elaboration: Alessandra Badami).

logics of *urgency*, *legitimation*, *implementation*, and *experimentation*, as outlined in the *Urban Sustainability Compass* Figure 3.4 (Chapter 1).

Urgency first emerged in the post-industrial context of the 1990s, when Aalborg faced economic decline, environmental degradation, and demographic change. These local challenges echoed broader European debates on sustainable urban renewal following the Rio Earth Summit (United Nations, 1992) and Local Agenda 21 (United Nations, 1992b, Betsill and Bulkeley 2005). Early strategies, such as the *Fjordkatalog* (Aalborg Kommune 1999), responded by redefining the Limfjord waterfront as both an ecological and social asset, reconnecting the city to its deindustrialised landscapes and creating space for public use and biodiversity. This urgency aligns with perspectives from *Urban Political Ecology*, which frame environmental degradation, health concerns, and socio-economic marginalisation as interconnected outcomes of unsustainable urban growth regimes. The *Aalborg Charter* and subsequent *Aalborg Commitments* introduced a new moral and political vocabulary, linking local action to global sustainability goals and catalysing a governance ethos focused on integration and resilience.

Legitimation unfolded as planners and policymakers built symbolic and institutional frameworks to anchor this reorientation. The *Bykatalog* (Aalborg Kommune 1993), *Strategic Axis*, and later the *Growth Axis* exemplified this phase. These were not merely spatial tools but instruments of *Just Sustainability*: they articulated shared values such as spatial cohesion, participation, and equity, making sustainability both legible and actionable. By creating accessible policy narratives and visual frameworks, these strategies built public legitimacy and cross-sectoral alignment, reflecting the influence of Urban Sustainability Governance.

Implementation followed through the institutionalisation of strategic spatial planning. The introduction of the *Growth Axis* (*Vækstaksen*) in *Planstrategi 2011* (Aalborg Kommune 2011) marked a turning point, spatially concentrating densification, sustainable mobility, and investment priorities along a coherent urban corridor linking Aalborg Airport, the city centre, and Aalborg University Hospital. Subsequent strategies – *Planstrategi 2016* (*Vækst, Trivsel og det Grønne*) (Aalborg Kommune 2016a), *Planstrategi 2019* (*Ansvarlig Vækst*) (Aalborg Kommune 2019), and *Planstrategi 2023* (*By i Forandring*) (Aalborg Kommune 2023) – expanded this framework. *Vision 2025* (Aalborg Kommune 2013), acting as a long-term normative horizon, aligned sectoral ambitions in resilience, digitalisation, social cohesion, and knowledge economies with broader sustainability goals. Phronetic planning illuminates that context-specific knowledge and those practical judgements that guided iterative decision-making through *Kommuneplaner*, *Planstrategier*, *Lokalplaner*, and flagship projects like the Aalborg +BUS. Sustainability was translated from abstract goals into tangible interventions, embedding climate neutrality, housing diversity, and sustainable mobility into the city's socio-spatial dimension.

Experimentation infused Aalborg's planning with a culture of learning and reflexivity. The introduction of the *Sustainability Flower* (*Baredygtighedsblomsten*) in 2011 provided a *dialogical tool* for integrating environmental,

social, economic, technical, and process-orientated dimensions of sustainability into early planning phases (Aalborg Kommune 2011). It was applied in major projects such as *Østre Havn*, *Eternitten*, and *Aalborg East*, fostering interdisciplinary collaboration and co-created *place-based sustainability narratives* that informed local plans. The Flower also evolved into a participatory gamification tool, bridging municipal goals and community perspectives and prefiguring later systemic approaches to co-creation.

This experimental logic was further consolidated with the *Sustainability Strategy 2016–2022*, which set explicit goals for social development, green economic growth, and environmental protection (Aalborg Kommune 2016b). It introduced advanced ideas – such as aligning urban planning with planetary boundaries – and emphasised the co-creation of Aalborg’s sustainable transition with citizens. Complementing these technical tools, cultural platforms like the *Aalborg Sustainability Festival* (launched in 2013) embedded sustainability in the everyday life of residents, functioning as a *living laboratory* for climate awareness, green mobility, and circular economy practices.

These initiatives anticipated what would later be formalised in European policy as *Local Green Deals* – place-based, co-created frameworks that translate the EU Green Deal into local action through cross-sectoral collaboration and cultural engagement (ICLEI 2024).

Later strategies, particularly the *Planstrategi 2023*, explicitly embedded lessons from earlier sustainability tools into systemic frameworks addressing climate neutrality, biodiversity, social equity, and digital transformation. Aalborg’s *Climate Plan 2021–2030* (Aalborg Kommune 2021a) and the *Aalborg Conditions (2024)* build directly on the dialogical ethos of the Sustainability Flower and participatory models like the festival to guide Aalborg’s green and just transition.

This temporal layering of strategies and tools exemplifies strategic urban sustainability planning as an iterative, communicative process, where long-term visions of sustainability are continually tested, revised, and scaled through feedback loops, institutional learning, and place-based dialogue (Healey 2018). Rather than a linear blueprint, Aalborg’s strategic planning approach to urban sustainability relied on relational processes connecting actors, sectors, and scales, enabling visions to evolve collaboratively over time Table 3.2. Platforms for civic engagement, such as the Sustainability Festival (Aalborg Kommune, 2016a), complement technical instruments like the Sustainability Flower and planning strategies by framing sustainability as a shared community endeavour rather than a top-down mandate.

In a broader context, Aalborg’s experience aligns with, but is distinct from, other Danish cities like Copenhagen, Aarhus, and Odense, which have similarly experimented with local sustainability models and strategies – ranging from quantitative climate metrics to more qualitative, deliberative approaches (Reimer and Rusche 2019). Aalborg stands out as a medium-sized city that successfully combined strategic sustainability planning, participatory governance, and cultural engagement, demonstrating how sustained institutional commitment and adaptive planning logics can gradually drive urban sustainability transitions over time.

Conclusion: Urban Sustainability through Strategic Spatial Planning in Aalborg

Over the past three decades, the principles of the *Aalborg Charter* (Aalborg Kommune, 1994) have been progressively translated into practice through a deliberate and evolving strategic planning agenda. What began as a visionary declaration has been operationalised into a planning culture where urban sustainability is not only a normative ideal but also a guiding framework for spatial development, institutional coordination, and governance innovation (Agyeman, 2005; Campbell 2016).

Throughout this period, strategic planning instruments (Table 3.1) have framed narratives of urban sustainability towards *relational strategic planning*

Table 3.1 Aalborg's Strategic Planning Roadmap and Emerging Sustainability Narratives (Elaboration: Enza Lissandrello) ㄱ

<i>Year/Strategy</i>	<i>Main Focus</i>	<i>Key Sustainability Narratives</i>	<i>Key Initiatives/ Instruments</i>
1998 – Bykatalog	Historic city centre	Urban quality, compact development, participatory planning	Urban design guidelines, dialogue forums
1999 – Fjordkatalog	Limfjord waterfront regeneration	Ecological, cultural, and spatial integration	Waterfront public spaces, reuse of post-industrial areas
2000 & 2004 – Planstrategi	Municipal governance	Formalising sustainability, cross-sectoral coordination	Participatory frameworks, Local Agenda 21
2007 – Vision 2025	City-wide vision	Climate responsibility, spatial cohesion, inclusive growth	Integrated sustainability targets
2011 – Planstrategi 2011	Growth Axis corridor	Transit-orientated development, densification, integrated mobility	Growth Axis, +BUS BRT system, green corridors
2013 – Vision 2035	Long-term spatial vision	Linking housing, mobility, and climate goals	Green–blue infrastructure integration
2015 & 2019 – Planstrategi	Governance & green transition	Aligning mobility, land use, and climate policy	Smart mobility initiatives, densification corridors
2021 – Climate Plan 2021–2030	Climate neutrality	Aalborg climate-neutral by 2030	CO ₂ reduction pathways, green transition programmes
2021 – Fysisk Vision 2035	Physical development vision	Reaffirming Growth Axis as structural spine	Long-term alignment of housing, mobility and climate goals
2023 – Planstrategi 2023	SDG alignment & democracy	UN SDGs, national climate neutrality, democratic sustainability	Aalborg Conditions (2024) framework

Table 3.2 Aalborg's Urban Sustainability Strategies: Logics, Frameworks, and Governance Shifts (Elaboration: Enza Lissandrello) ↱

<i>Logic</i>	<i>Period</i>	<i>Global/European Frameworks</i>	<i>Key Drivers in Local Context</i>	<i>Aalborg Strategies & Tools</i>	<i>Outcome/Governance Shift</i>
Urgency	1990s	Rio Earth Summit (1992), Local Agenda 21, European Sustainable Cities & Towns Campaign	Post-industrial decline, environmental degradation and demographic shifts required a rethinking of urban development	Aalborg Charter (1994), Local Agenda 21, Fjordkatalog (Aalborg Kommune, 1999) redefining Limfjord waterfront	Introduced global-local sustainability vocabulary; framed environmental, social, and economic crises as interconnected
Legitimation	Late 1990s–2000s	Aalborg Commitments (ICLEI, 2004), EU Lisbon Strategy for sustainable growth	Need to institutionalise sustainability and engage stakeholders; build symbolic and spatial narratives	Bykatalog (Aalborg Kommune, 1993), Strategic Axis; participatory debates like Bedre By	Made sustainability tangible and legible; created spatial priorities for mobility, housing, and green infrastructure
Implementation	2010s	Europe 2020 Strategy, Paris Agreement (United Nations, 2015), SDG 11 – Sustainable Cities	Consolidating sustainability principles into planning instruments; prioritising densification & sustainable mobility	Growth Axis Planstrategi 2011(Aalborg Kommune, 2011); Vision 2025 (Aalborg Kommune, 2013); Planstrategi 2016 (Vækst, Trivsel og det Grønne)	Sustainability integrated into Kommuneplaner & Lokalplaner; coordination of housing, mobility, and investments along the Growth Axis
Experimentation	2010s–early 2020s	UN SDGs (2015), New Urban Agenda Habitat III (United Nations, 2016)	Reflexive planning, citizen co-creation, testing systemic climate solutions	Sustainability Flower (Plan & Byg, 2011); Sustainability Strategy 2016–2022; Aalborg Sustainability Festival (2013–); Local Green Deal pilots	Fostered interdisciplinary collaboration; engaged citizens in everyday sustainability practices; created feedback loops for learning
Systemic Integration	2020s	EU Green Deal (European Commission, 2019), Danish Climate Act (Folketinget, 2020), EU Mission: Climate-Neutral Cities by 2030	Transitioning to climate neutrality, biodiversity restoration, social equity, and digitalisation	Planstrategi 2019 (Ansvarlig Vækst); Planstrategi 2023 (By i Forandring); Climate Plan 2021–2030; Aalborg Conditions (2024)	Shifted towards systemic transitions; embedding SDGs, climate neutrality, and inclusive governance into everyday planning

of urban sustainability: a process of building shared imaginaries and governance capacity rather than implementing a fixed blueprint (Healey 2007). Tools such as the *Bykatalog* (Aalborg Kommune 1993a), the *Fjordkatalog* (Aalborg Kommune 1999), and successive *planning strategies* (Aalborg Kommune, 2011, 2016, 2019, 2023) positioned planning not merely as a technical exercise but as a strategic medium for aligning long-term visions with spatial development trajectories. Aalborg thus shifted from ad hoc responses to post-industrial crises towards an anticipatory planning culture that connects urban form, urban identity, and sustainability priorities.

Institutional innovations complemented this strategic turn. Planning instruments served dual purposes: regulating land use while embedding sustainability logics into municipal decision-making. Experimental frameworks such as the *Sustainability Flower* (Aalborg Kommune, 2011a; Lissandrello, 2017) reflected reflexive planning (Lissandrello & Grin, 2011) by enabling planners to integrate environmental, social, economic, and cultural dimensions through stakeholder dialogue and participatory co-creation. Complementary citizen-driven initiatives, such as the *Aalborg Sustainability Festival* (launched in 2013), embedded sustainability into everyday cultural practices, bridging formal governance with citizen imaginaries of climate responsibility and resilience (Bulkeley, Paterson, and Stripple 2016; Wachsmuth & Angelo 2023). Importantly, Aalborg's sustainability journey has unfolded through shifting configurations of *urgency*, *legitimation*, *implementation*, and *experimentation*, the four interpretive logics at the heart of the *Urban Sustainability Compass* (Chapter 1). Urgency, framed through the lens of *Urban Political Ecology* (Heynen 2006; Swyngedouw & Heynen, 2003), arose from intertwined crises of environmental degradation, socio-economic marginalisation, and post-industrial decline. *Legitimation* consolidated shared values and governance frameworks through participatory planning related to issues of *just sustainabilities* (Agyeman, 2013) that embed equity and inclusion within environmental policies. *Implementation* translated these principles into *Kommuneplaner*, *Planstrategier*, and *Lokalplaner*, exemplifying through *phronetic planning* (Flyvbjerg, 2004) how grounded decisions mobilise context-specific knowledge and practical judgement. *Experimentation*, through the *Sustainability Festivals* and dialogical tools like the *Sustainability Flower*, reflects *urban experimentation* (Bulkeley 2023) as a driver of sustainability transitions.

These logics reveal how planning for urban sustainability in Aalborg evolved from a reactive governance tool to a proactive medium for steering complex sustainability transitions (McCormick et al. 2013). Strategic planning in Aalborg has operated not only through instruments and institutions but also through the politics of sustainability discourse (Hajer 1995). Contemporary strategies link climate goals with social well-being, quality of life, and urban identity, reframing urban sustainability as a shared urban and global ambition rather than a technocratic mandate.

Such narratives – strategically deployed internally within Aalborg's municipal administration and externally through its positioning in European networks

– have aligned institutional reforms with broader societal aspirations, reinforcing sustainability as both a governance priority and a public ambition (Castán Broto & Westman 2020). Aalborg thus illustrates how sustainability becomes internalised across scales, sectors, and temporalities, creating a *deliberative planning culture* (Forester 1999) that motivates action, legitimises priorities, and spatialises change.

This synthesis paves the way for the following chapters, beginning with Chapter 4, which examines how these socio-spatial and governance logics materialise in the planning of Aalborg's waterfront transformations, further illustrating the negotiated and adaptive nature of urban sustainability *in the making*.

References

- Aalborg Kommune. 1993. *Bykatalog: Byens mål – Aalborg og Nørresundby tætbyområde* [City Catalogue: City Goals – Aalborg and Nørresundby Mid-City Area]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 1993a. *Bykatalog: Aalborg og Nørresundby tætbyområde* [Urban catalogue: Aalborg and Nørresundby inner-city area]. Aalborg: Aalborg Kommune. Teknisk Forvaltning.
- Aalborg Kommune. 1999, December. *Fjordkatalog: Byplanrammer for Limfjordens kyster* [Fjord Catalogue: Urban planning framework for the Limfjord waterfronts]. Aalborg: Aalborg Kommune. Retrieved from Aalborg Stadsarkiv PDF – <https://apps.aalborgkommune.dk/images/teknisk/BM/PDF/PlanVis/stadark/fjord.kat/Fjordk99.pdf>
- Aalborg Kommune. 2000. *Byens mål: Aalborg og Nørresundby Bykatalog*. Aalborg Kommune.
- Aalborg Kommune. 2011. *Planstrategi 2011: Norddanmarks vækstdynamo* [Planning Strategy 2011: Northern Denmark's Growth Dynamo]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2011a. *Bæredygtighedsbegreb* [The concept of sustainability]. Aalborg: Aalborg Kommune, Plan & Byg, Teknik-og Miljøforvaltningen.
- Aalborg Kommune. 2013. *Hovedstruktur 2013 - en Fysisk Vision 2025 for Aalborg Kommune* [Main structure 2013 – a physical vision 2025 for Aalborg Municipality]. Aalborg: Aalborg Kommune By- og Landskabsudvalget.
- Aalborg Kommune. 2016a. *Bæredygtighedsfestival: Aalborgs levende laboratorium for grøn omstilling*. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2016b. *Planstrategi 2016: Vi udvikler byer med kvalitet sammen* [We develop cities with quality together]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2017a. *Tillæg til Planstrategi 2016 – Kystturisme og feriehuszoner*. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2017b. *Tillæg til Planstrategi 2016 – Udviklingsrammer for Stigsborg Havnefront og Dybbroparken*. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2019. *Planstrategi 2019: Aalborg – bæredygtig byudvikling og grøn omstilling* [Aalborg – Sustainable Urban Development and Green Transition]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2021a. *Climate Plan 2021–2030: Aalborg – Klimaneutral i 2030* [Climate Plan 2021–2030: Aalborg Climate Neutral by 2030]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2021b. *Fysisk Vision 2035* [Physical Vision 2035]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2023. *Planstrategi 2023: Aalborg – Bæredygtig udvikling med FN's verdensmål* [Plan Strategy 2023: Aalborg – Sustainable Development with the UN SDGs]. Aalborg: Aalborg Kommune.

- Aalborg Kommune. 2024. *Aalborg Conditions: Et lokalt rammeværk for demokratisk bæredygtighedsstyring* [Aalborg Conditions: A Local Framework for Democratic Sustainability Governance]. Aalborg: Aalborg Kommune.
- Agyeman, J. 2005. *Sustainable Communities and the Challenge of Environmental Justice*. New York: New York University Press.
- Agyeman, J. 2013. *Introducing Just Sustainabilities: Policy, Planning, and Practice*. London: Zed Books.
- Andersen, A. J. 2013. *Urbane Projekter mellem sted, diskurs og planlægning, -redskaber i strategisk byomdannelse*. vbn.aau.dk
- Andersen, A. J. 2016. *Byplanlægning i Aalborg Midtby. Fra gadegennembrud til tæt byudvikling*. Aalborgbogen. Selskabet for Aalborgs Historie; Aalborg Stadsarkiv; Aalborg Kommune; Aalborg Historiske Museum. 137.
- Andersen, J., and J. Pløger. 2007. 'The Dualism of Urban Governance in Denmark.' *European Planning Studies* 15(10):1349–67.
- Anguelovski, I., J. J. Connolly, M. Garcia-Lamarca, H. Cole, and H. Pearsall. 2019. 'New Scholarly Pathways on Green Gentrification: What Does the Urban "Green Turn" Mean and Where Is It Going?' *Progress in Human Geography* 43(6):1064–86.
- Aunsborg, C., and M. T. Sørensen. 2008. 'Planning and Implementation of Urban Regeneration: Adequacy of the Statutory Toolbox in Denmark.' *FIG Working Week 2008*. Retrieved from https://vbn.aau.dk/files/14544341/Planning_and_Implementation_of_Urban_Regeneration.pdf
- Betsill, M. M., and H. Bulkeley. 2005. 'Cities Protecting the Climate: The Local Dimension of Global Environmental Governance'. In W. L. Filho (Ed.), *Perspectives on Climate Change: Science, Economics, Politics, Ethics* (pp. 189–213). Emerald Group Publishing Limited.
- Bulkeley, H. 2022. 'Climate Changed Urban Futures: Environmental Politics in the Anthropocene City' In M. Bäckstrand, N. Bondesson, & A. Kronsell (Eds.). *Trajectories in Environmental Politics*(pp. 263–81. London: Routledge.
- Bulkeley, H. 2023. 'The Condition of Urban Climate Experimentation'. *Sustainability: Science, Practice and Policy* 19(1):2188726.
- Bulkeley, H., and M. Betsill. 2005. 'Rethinking Sustainable Cities: Multilevel Governance and the "Urban" Politics of Climate Change'. *Environmental Politics* 14(1):42–63.
- Bulkeley, H., M. Paterson, and J. Strippel (eds.). 2016. *Towards a Cultural Politics of Climate Change: Devices, Desires and Dissent*. Cambridge: Cambridge University Press.
- Campbell, S. D. 2016. 'The Planner's Triangle Revisited: Sustainability and the Evolution of a Planning Ideal That Can't Stand Still'. *Journal of the American Planning Association* 82(4):388–97.
- Castán Broto, V., and L. K. Westman. 2020. 'Ten Years after Copenhagen: Reimagining Climate Change Governance in Urban Areas'. *Wiley Interdisciplinary Reviews: Climate Change* 11(4):e643.
- ECTP. 1995. *European Planning Award: Aalborg Municipality* [Press release]. European Council of Spatial Planners.
- ESPO/ENSURE. 2020. *European Sustainable Urbanisation through Port City Regeneration: Aalborg Case Study (Annex 4.1)*. Luxembourg: ESPON EGTC. Retrieved from <https://archive.espon.eu/sites/default/files/attachments/Annex%204.1%20-%20Aalborg.pdf>
- European Commission. 2019. *The European Green Deal* (COM(2019) 640 final). Brussels: European Commission. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52019DC0640>
- Evans, J., A. Karvonen, and R. Raven. 2016. 'The Experimental City: New Modes and Prospects of Urban Transformation'. In J. Evans, A. Karvonen, & R. Raven (Eds.) *The Experimental City*(pp. 1–12). London: Routledge.
- Evans, J., T. Vácha, H. Kok, and K. Watson. 2021. 'How Cities Learn: From Experimentation to Transformation'. *Urban Planning* 6(1):171–82.

- Flyvbjerg, B. 1998. *Rationality and Power: Democracy in Practice*. Chicago: University of Chicago Press.
- Flyvbjerg, B. 2001. *Making Social Science Matter: Why social inquiry fails and how it can succeed again*. Cambridge: Cambridge University Press.
- Flyvbjerg, B. 2004. 'Phronetic Planning Research: Theoretical and Methodological Reflections'. *Planning Theory & Practice* 5(3):283–306.
- Folketinget. 2020. *Klimaloven* [The Climate Act], lov nr. 965 af 26. juni 2020. Copenhagen: Folketinget. Retrieved from <https://www.retsinformation.dk/eli/ltta/2020/965>
- Forester, J. 1999. *The Deliberative Practitioner: Encouraging Participatory Planning Processes*. Cambridge, MA: MIT Press.
- Grindsted, T. S., M. T. Larsen, and H. T. Jensen. 2024. 'Strategic Planning toward Sustainable Urban Planning Models? The Case of Municipal Directors in Denmark' In Peppoloni, S., & Di Capua, G. (Eds.), *Geoethics for the Future* (pp. 285–98). Amsterdam: Elsevier.
- Hajer, M. A. 1995. *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford: Oxford University Press.
- Haughton, G., P. Allmendinger, P. Counsell, and G. Vigar. 2010. *The New Spatial Planning: Territorial Management with Soft Spaces and Fuzzy Boundaries*. London: Routledge.
- Healey, P. 2004. 'The Treatment of Space and Place in the New Strategic Spatial Planning in Europe'. *International Journal of Urban and Regional Research* 28(1):45–67.
- Healey, P. 2007. *Urban Complexity and Spatial Strategies: Towards a Relational Planning for Our Times*. London: Routledge.
- Healey, P. 2018. 'Creating Public Value through Caring for Place'. *Policy & Politics* 46(1):65–79.
- Heynen, N. 2006. 'Green Urban Political Ecologies: Toward a Better Understanding of Inner-City Environmental Change'. *Environment and Planning A: Economy and Space* 38(3):499–516. <https://doi.org/10.1068/a37365> (Original work published 2006)
- Heynen, N., M. Kaika, and E. Swyngedouw. 2006. 'Urban Political Ecology: Politicizing the Production of Urban Natures'. pp. 16–35 in *In the Nature of Cities*. Routledge.
- Hickmann, T. 2021. 'Locating Cities and Their Governments in Multi-Level Sustainability Governance'. *Politics and Governance* 9(1):211–20.
- Hodson, M., J. Evans, and G. Schliwa. 2018. 'Conditioning Experimentation: The Struggle for Place-Based Discretion in Shaping Urban Infrastructures'. *Environment and Planning C: Politics and Space* 36(8):1480–98.
- ICLEI. 1994. *Aalborg Charter*. <https://iclei-europe.org/publications-tools/?c=search&uid=2K4g4nsA>
- ICLEI. 2004. *Aalborg Commitments*. <https://iclei-europe.org/publications-tools/?c=search&uid=AvYfqdhj>
- ICLEI. 2024a. *Local Green Deals: Translating the EU Green Deal into Local Action*. Retrieved from <https://iclei-europe.org/topics/governance-innovation/local-green-deals/>
- ICLEI. 2024b. *Aalborg Conditions*. https://iclei-europe.org/fileadmin/user_upload/Our_Work/Advocacy/Aalborg_Conditions/The-Aalborg-Conditions.pdf
- Jönsson, E., and G. Baeten. 2024. 'Whose Visions for What Land? Planning, Power and Property in a "New Inner City", Malmö 2004–2023'. *Geografiska Annaler: Series B, Human Geography* 1–20. Advance online publication. <https://doi.org/10.1080/04353684.2024.2411219>
- Klein, J., S. Juhola, and M. Landauer. 2017. 'Local Authorities and the Engagement of Private Actors in Climate Change Adaptation'. *Environment and Planning C: Government and Policy* 35(6):1055–75.
- Klint, J., O. B. Jensen, E. J. Jensen, and C. Broen. 2010. *Lokal Bæredygtighed og Områdefornyelse*. København: Dansk Byplanlaboratorium.

- Kommune, Aalborg. 2020. *Udkast til Hovedstruktur 2021: Fysisk vision 2035 – mod det gode liv og en bæredygtig fremtid (Udkast af 30. oktober 2020)*. Aalborg: Aalborg Kommune.
- Lafferty, W. M., and K. Eckerberg (eds.). 2013. *From the Earth Summit to Local Agenda 21: Working towards Sustainable Development*. London: Routledge.
- Landis, J. D. 2022. 'Urban Regeneration Meets Sustainability: HafenCity, Hamburg'. In *Megaprojects for Megacities*, pp. 407–28. Edward Elgar Publishing.
- Lissandrello, E. 2017, July. *The Transformative Power of Dialogue in Sustainable Urban Planning*. Paper presented at the *AESOP Annual Conference*, Lisbon, Portugal.
- Lissandrello, E., and J. Grin. 2011. 'Reflexive Planning as Design and Work: Lessons from the Port of Amsterdam'. *Planning Theory & Practice* 12(2):223–48.
- Madanipour, A., and A. Hull. 2017. *The Governance of Place: Space and Planning Processes*. London: Routledge.
- Mäntysalo, R., K. Olesen, and K. Granqvist. 2020. 'Artefactual Anchoring' of Strategic Spatial Planning as Persuasive Storytelling.' *Planning Theory* 19(3):285–305.
- McCormick, K., S. Anderberg, L. Coenen, and L. Neij. 2013. 'Advancing Sustainable Urban Transformation.' *Journal of Cleaner Production* 50:1–11.
- Miljøministeriet. 2006. *Landsplanredegørelse 2006: Det Nye Danmarks kort – Planlægning Under Nye Vilkår*. København: Skov- og Naturstyrelsen.
- Nadin, V., and A. M. Fernández-Maldonado. 2023. 'Spatial Planning Systems in Europe: Multiple Trajectories.' *Planning Practice & Research* 38(5): 625–38.
- Næss, P. 1993. *Transport Systems, Energy, and the Environment: Compact City Planning as a Strategy for Sustainable Urban Development*. Aalborg: Aalborg University Press.
- Næss, P. 1995. 'Urban Form and Sustainable Transport: Lessons from European Cities.' *Journal of Transport Geography* 3(4):217–28.
- Næss, P., and O. B. Jensen. 2002. 'Urban Land Use, Mobility, and Sustainability: Experiences from Copenhagen and Aalborg.' *Journal of Environmental Policy & Planning* 4(3):245–57.
- Olesen, K. 2020. 'Infrastructure Imaginaries: The Politics of Light Rail Projects in the Age of Neoliberalism.' *Urban Studies* 57(9):1811–26.
- Plan & Byg. 2011. *Bæredygtighedsblomsten*. Scribd. Retrieved June 11, 2025, from <https://www.scribd.com/document/340085779/Bæredygtighedsblomsten>
- Reimer, M., and K. Rusche. 2019. 'Green Infrastructure Under Pressure: A Global Narrative Between Regional Vision and Local Implementation.' *European Planning Studies* 27(8):1542–63.
- Reimer, M., P. Getimis, and H. H. Blotevogel. 2014. *Spatial Planning Systems and Practices in Europe: A Comparative Perspective on Continuity and Changes* (1st ed.). New York: Routledge.
- Roodbol-Mekkes, P. H., and A. van den Brink. 2015. 'Rescaling Spatial Planning: Spatial Planning Reforms in Denmark, England, and the Netherlands.' *Environment and Planning C: Government and Policy* 33(1):184–98.
- Sørensen, E., and J. Torfing. 2007. *Theories of Democratic Network Governance*. New York, NY: Palgrave.
- Swyngedouw, E., and N. C. Heynen. 2003. 'Urban Political Ecology, Justice and the Politics of Scale.' *Antipode* 35(5):898–918.
- Thomsen, H. 2020. *ENSURE – European Sustainable Urbanisation Through Port City Regeneration. Targeted Analysis. Annex 4.1 – Case Study Report*. Aalborg (DK): Espon.
- Torrens, J., and T. von Wirth. 2021. 'Experimentation or Projectification of Urban Change? A Critical Appraisal and Three Steps Forward.' *Urban Transformations* 3(1):8.
- United Nations. 1992. *Rio Declaration on Environment and Development*. United Nations Conference on Environment and Development, Rio de Janeiro, 3–14 June 1992. Retrieved from https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf

- United Nations. 1992b. *Agenda 21: Programme of Action for Sustainable Development*. UN Department of Economic and Social Affairs. Retrieved August 16, 2025 <https://sustainabledevelopment.un.org/outcomedocuments/agenda21>
- United Nations. 1995. *Report of the World Summit for Social Development*. Retrieved August 16, 2025 <https://docs.un.org/en/A/CONF.166/9>
- United Nations. 2015. Paris Agreement. United Nations Treaty Collection. Retrieved from https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- United Nations. 2016. *Habitat III: United Nations Conference on Housing and Sustainable Urban Development, Quito, Ecuador, 17–20 October 2016*. New York: United Nations.
- Wachsmuth, D., and H. Angelo. 2023. 'Greenwashing and Greywashing: New Ideologies of Nature in Urban Sustainability Policy.' In Kaika, M., Keil R., Mandler T. and Tzaninis Y. (eds.), *Turning Up the Heat*, pp. 284–301. Manchester: Manchester University Press.
- Wouters, M. 2022. 'Reinventing Bilbao, the Story of the Bilbao Effect.' In: Piselli, C., Altan, H., Balaban, O., and Kremer, P. (eds.) *Innovating Strategies and Solutions for Urban Performance and Regeneration*, pp. 37–48. Cham: Springer International Publishing.

4 Urban Identity Transformation

The Aalborg Waterfront

Enza Lissandrello and Alessandra Badami

Introduction: The Aalborg Waterfront

The transformation of Aalborg's waterfront over the past three decades represents a rich case for understanding urban sustainability not as a fixed objective but as a dynamic, contested, and spatially embedded process. Once dominated by industrial production, logistical infrastructure, and environmental degradation, the waterfront has been reconfigured into a multifunctional urban landscape, integrating public space, cultural institutions, housing, educational facilities, and ecological design. This evolution reflects a deeper shift in Aalborg urban identity and planning rationalities: from the logics of industrial modernity towards a more symbolic, community-driven, and sustainability-orientated urbanism.

Historically, Aalborg's relationship with the Limfjord has been both material and metaphorical, anchoring the city's economic identity while shaping its urban morphology. Throughout the 20th century, the waterfront epitomised Danish industrial urbanism, with vast areas occupied by shipyards, cement factories, slaughterhouses, and power plants. By the late 1980s, however, in the wake of energy crises, global industrial restructuring, and the decline of port-based economies, Aalborg was confronted with a profound spatial and political rupture. The obsolescence of its waterfront infrastructure generated not only physical vacancies but also a broader developmental crisis. However, this opened a window of opportunity for strategic redefinition.

It was against this background that the vision of 'the city around the fjord' – articulated in the *Fjordkatalog* (2012/1999) – emerged as a pivotal imaginary. This vision initiated a long-term planning trajectory aimed at reorienting the city towards its waterfront through design experimentation, community-driven engagement, and institutional commitment. Since then, Aalborg's waterfront has become a laboratory for experimenting with sustainability, not as a predetermined goal but as a spatially iterative and politically co-produced transformation.

This chapter traces the evolution of the waterfront through three major phases of urban regeneration. *Phase I* includes early interventions such as *Vestre Havnepromenade* and *Ø-Gadekvarteret*, which marked the city's initial shift from industrial decline to public-orientated redevelopment. *Phase II* is defined by

cultural and architectural interventions – *Jomfru Ane Parken*, *Tolbod Plads* and *Slotspladsen*, the *Utzon Center*, and *Nordkraft* – which embedded identity, creativity, and symbolic value into the urban fabric. *Phase III* comprises large-scale, strategic projects such as *Musikkens Hus*, *Create*, *Østre Havn*, *Vestre Fjordpark*, and *Stigsborg*, which collectively represent the consolidation of ecological integration, housing development, and long-term urban expansion.

These interventions are examined not as isolated projects but as interdependent moments in the making of urban sustainability, which are understood through material infrastructures, governance arrangements, and evolving narrative framings. The chapter is guided by the following central research question: *How have the logics of urgency, legitimation, implementation, and experimentation shaped Aalborg's sustainability transformation?*

Anchored in the conceptual framework of the *Urban Sustainability Compass* (Chapter 1), the analysis draws on the interpretative logics and theoretical perspectives which provide an integrated, reflexive lens through which to examine the waterfront regeneration as both a spatial practice and a discursive project.

Structure of the Chapter. The chapter is organised into five sections. Following this introduction, *Section 1* outlines the theoretical and methodological foundations of the analysis. *Section 2* reconstructs the empirical trajectories of Aalborg's waterfront regeneration, with particular attention to the distinct phases, projects, and processes through which change has materialised. *Section 3* examines the temporal and institutional path of implementation, highlighting how planning strategies have evolved over time. *Section 4* applies the *Urban Sustainability Compass* to interpret the dynamic interplay between the four logics of urgency, legitimation, implementation, and experimentation. Finally, *Section 5* concludes by reflecting on Aalborg's waterfront as a situated and generative case of *urban sustainability in the making* in a post-industrial context.

Methodology and Analytical Approach

This section outlines the conceptual and methodological foundations of the chapter's analysis of Aalborg's waterfront regeneration. Drawing from the *Urban Sustainability Compass* (Chapter 1), the framework mobilises four interpretive logics – urgency, legitimation, implementation, and experimentation – as heuristic devices to examine how sustainability is articulated, contested, and enacted through governance, design, and everyday urban practices. These logics are not conceived as sequential stages but as iterative and overlapping forces that shape the temporal and spatial unfolding of sustainability-orientated urban transformation.

The analysis is informed by four interrelated theoretical perspectives. *Urban Sustainability Governance* (Swyngedouw and Heynen 2003) offers a critical lens through which to examine the waterfront as a site of socio-ecological transformation. The dismantling of cement factories, shipyards, and power plants in Aalborg is not merely a matter of spatial repurposing but also a reflection of deeper shifts in the urban metabolism, the socio-material flows

and ecological relations that underpin urban life. As the city moves from industrial infrastructure towards ecological urbanism, new forms of metabolic organisation emerge: green spaces replace polluted grounds, recreational areas substitute logistical zones, and symbolic landscapes reconfigure the meaning and value of urban nature. This metabolic transformation is selectively produced, symbolised, and rendered governable through planning instruments, discursive framings, and institutional mechanisms.

A *Just Sustainability* perspective (Agyeman and Evans 2004) brings the normative and political dimensions of urban transformation to the fore by focusing on both distributive justice – who benefits from access to public space, housing, and cultural resources – and procedural justice – whose voices are recognised and legitimised in shaping urban futures. In the context of Aalborg's waterfront, this perspective is particularly relevant for investigating inclusion and exclusion in regeneration processes. Urban transformations are often conflictual and contested, also in the name of urban sustainability.

Phronetic Planning (Flyvbjerg 2004) offers a value-rational and reflexive understanding of planning practice. Rooted in practical judgement, situated knowledge, and deliberative engagement, it facilitates an adaptive, iterative, and politically aware analysis of Aalborg's planning culture. It highlights how planning actors navigate dilemmas, reconcile competing interests, and experiment with institutional learning in context-sensitive and ethically charged situations. Finally, the lens of *Urban Sustainability Governance* (Smith and Wiek 2012) focuses on how sustainability is institutionalised across multiple scales and actor configurations. In Aalborg, this includes long-term political leadership, evolving public-private partnerships, and the embedding of transnational sustainability agendas, such as those articulated through the Aalborg Charter (ICLEI 1994) and the Aalborg Commitments (ICLEI 2004). These frameworks have contributed to shaping strategic visions, coordinating mechanisms, and operational instruments for sustainability-orientated urban transformation (Bulkeley et al. 2011). Methodologically, the chapter adopts an interpretive and qualitative case study approach, which is aligned with the book's broader phronetic research ethos. Special attention is paid to how political narratives, spatial imaginaries, and governance mechanisms have co-produced the trajectory of Aalborg's waterfront over time. The empirical material includes planning documents, architectural and design frameworks, municipal strategies, council reports, and policy evaluations, as well as secondary literature. This is complemented by site observations, expert interviews with planners and public officials, and reflexive workshops with local stakeholders.

The conceptual and methodological approach enables a situated reading of Aalborg's waterfront as a living laboratory, a site where sustainability is not merely administered but actively produced and reconfigured through shifting material infrastructures, symbolic framings, and institutional negotiations. It sets the stage for the empirical analysis that follows, which links theoretical insights to the grounded dynamics of urban regeneration across projects, actors, and temporalities.

Phases of Aalborg Waterfront Regeneration

The transformation of Aalborg's waterfront has unfolded within the broader context of economic restructuring, environmental remediation, and a growing ambition to reposition the city's identity in relation to the Limfjord. Rather than advancing through a single, comprehensive masterplan, regeneration emerged as a mosaic of site-specific interventions, each shaped by distinct historical legacies, institutional arrangements, and planning rationalities. Over the past three decades, this post-industrial urban edge has been reconfigured through a constellation of design experiments, public-private collaborations, and evolving governance regimes. Former shipyards, cement factories, slaughterhouses, and logistical depots have been repurposed into multifunctional districts combining housing, culture, green infrastructure, and recreational amenities.

Today, the waterfront functions as a layered palimpsest where ecological restoration, cultural branding, urban design, and land value capture intersect. Each intervention – whether it be focused on public space, housing, heritage reuse, or cultural infrastructure – reflects broader tensions and aspirations underlying Aalborg's post-industrial transformation. This section traces the waterfront's evolution across three major phases, positioning each as a material and institutional expression of the interpretive logics introduced in the *Urban Sustainability Compass*.

Phase I (1980s–1990s) addresses the initial challenges of deindustrialisation and ecological degradation. Anchored in emerging European sustainability discourses, including the Aalborg Charter (ICLEI 1994), this phase marked a foundational shift from mono-functional industrial land use to public access, environmental remediation, and spatial experimentation. Projects such as *Vestre Havnepromenade* and *Ø-Gadekvarteret* signalled a new planning orientation grounded in ecological awareness and urban landscape renewal. The dominant rationalities were urgency and experimentation: responding to crisis conditions while opening space for new socio-ecological imaginaries and institutional practices. This phase laid the ecological and governance groundwork for subsequent trajectories.

Phase II (2000s–2010s) focuses on the symbolic consolidation of urban identity through cultural infrastructure and architectural landmarking. Projects such as *Jomfru Ane Parken*, *Tolbod Plads* and *Slotspladsen*, the *Utzon Center*, and *Nordkraft* reflect a shift towards spatial legitimation and community-driven branding. Planning rationalities during this period emphasised legitimation and implementation as municipal actors leveraged culture, creativity, and heritage as drivers of sustainable urban development. These projects and processes contributed to a narrative of Aalborg as a forward-looking, liveable, and culturally vibrant city and consolidated the experimental ethos of earlier interventions into durable spatial and institutional forms.

Phase III (2010s–present) reflects a further shift towards governance-driven sustainability. This period is characterised by the spatial integration of ecological principles, the diversification of actors, and a greater emphasis on participatory planning and cross-sector collaboration. Projects such as *Musikkens Hus*,

Create, *Østre Havn*, *Vestre Fjordpark*, and *Spritten* illustrate that sustainability objectives are operationalised through contested, negotiated, and iterative processes. The planning rationalities here align with implementation and governance, which is understood not as technocratic coordination but as a field of symbolic production, institutional learning, and co-production. Sustainability emerges as a negotiated condition rather than a fixed endpoint, which is embedded in infrastructures, everyday practices, and long-term planning frameworks.

Each phase reflects a distinct configuration of planning rationalities – from ecological experimentation and symbolic space-making to participatory governance – thereby revealing Aalborg’s waterfront not as a linear redevelopment project but as a multi-scalar, path-dependent process of urban transformation. Analysed through the interpretive logics of urgency, legitimation, implementation, and governance, this phased trajectory highlights the situated, negotiated, and contested nature of *sustainability in the making*.

Phase I: Opening Access and Reframing the Waterfront (1990s–Early 2000s)

The first phase of Aalborg’s waterfront transformation unfolded amid the structural shifts of deindustrialisation and urban decline. As former port and industrial activities ceased, large tracts of the inner-city waterfront were left physically deteriorated and spatially disconnected from the urban fabric. This period marked the beginning of a profound reorientation, from an industrial landscape to one increasingly envisioned as a community-driven, ecological, and cultural asset.

Driven by the logic of urgency, municipal actors sought to address the visible decay of the post-industrial waterfront while reactivating it through incremental, low-risk interventions. In the absence of an overarching master plan, planning practice during this period was characterised by experimentation, improvisation, and institutional learning. A flexible combination of design competitions and negotiated public-private partnerships enabled planners to initiate change despite regulatory constraints (Galland and Carsten 2012).

Early interventions – such as *Vestre Havnepromenade* and *Ø-Gadekvarteret* – illustrate the exploratory nature of this phase. These projects focused on opening public access to the fjord, establishing new pedestrian links, and testing spatial programming strategies. Collectively, they redefined the waterfront as a space of potential public encounter rather than industrial containment. However, outcomes were often uneven, as the absence of comprehensive governance frameworks led to fragmented implementation and inconsistent public benefit.

This early phase also positioned Aalborg as a testing ground for design-based development (Marling and Kiib 2007), an approach centered on architectural competitions, spatial prototyping, and urban storytelling. These methods enabled planners and designers to engage with the complexities of post-industrial space while resisting the pressures of full-scale commercialisation. Yet the institutional instruments available at the time proved insufficient to fully govern these emerging dynamics. In response to this challenge, Danish national reforms

between 1999 and 2001 introduced new statutory tools tailored to urban regeneration processes, which Aalborg was among the first municipalities to operationalise (Aunsborg and Sørensen 2008).

Despite its provisional character, *Phase I* laid crucial conceptual and spatial foundations for subsequent transformation. It began the process of reframing the waterfront as a shared public landscape, where access, environmental quality, and social interaction were treated as central values. It also served as a pedagogical moment for the city, testing governance arrangements, developing new institutional capacities, and introducing sustainability discourse into the urban agenda.

Viewed through the lens of *Phronetic Planning* and *Urban Sustainability Governance*, this phase represents a foundational threshold: a time when urgency catalysed action, when derelict spaces became sites of imagination, and when the groundwork was laid for more integrated, culturally anchored, and future-orientated regeneration strategies in the decades to follow.

Vestre Havnepromenade: From Experimental Vision to Market-Driven Realignment

The redevelopment of *Vestre Havnepromenade* marked a pivotal moment in Aalborg's early waterfront regeneration. Initiated in 1989, a design competition was launched to catalyse the transformation of a 9-hectare derelict site between the Limfjord road bridge and the former *Danske Spritfabrikker* distillery. Previously dominated by warehouses, storage yards, and fenced-off quays, the site represented both the physical and symbolic disconnect between the post-industrial city and its waterfront.

In the early 1990s, Aalborg Municipality strategically acquired the site and framed it as a testbed for sustainable, mixed-use redevelopment. The winning proposal by Bjørk & Maigård at the end of the 1990s introduced a fjord-orientated masterplan, with residential blocks aligned perpendicular to the water to preserve visual and physical permeability. The scheme incorporated commercial and community amenities at ground level, a marina accessed via an engineered canal, and an extensive public infrastructure, most notably a continuous promenade, *Vestre Havnepromenade*, envisioned as a connective landscape of ecological, recreational, and public value (Aalborg Kommune 1989). A local plan was adopted to codify this vision, though it proved insufficiently robust. The municipality sold the site to a private developer, which triggered a significant realignment of priorities. Density was increased, green and public spaces reduced, and the original design's permeability compromised. The final built project, realised by Hans Dall and Torben Lindhardtzen, replaced the open, adaptive layout with a rigid orthogonal grid of seven perimeter blocks and three linear volumes (Aalborg Kommune 2000). A single water element, *Obels Kanal*, was implemented as a narrow, non-navigable basin disconnected from the fjord, a formal gesture lacking functional or ecological integration (Andersen 2013).

The promenade became spatially constrained by continuous building façades and undeveloped green space. Access to the water was physically possible but visually fragmented, and the social programming originally imagined for the public realm was largely unfulfilled. The aesthetic appropriation of ecological form – particularly through *Obels Kanal* – offered the semblance of sustainability while undermining its substance.

From an *Urban Sustainability Governance* perspective, this transformation illustrates that the symbolic capital of urban nature was leveraged to legitimise speculative densification. What began as a publicly orientated reconfiguration of industrial land into accessible public space evolved into a commodified landscape, shaped more by investment logic than by environmental or social justice. The loss of permeability, coupled with the reduction in collective amenities, highlights the displacement of *Just Sustainability* by market imperatives.

At the governance level, the case exposes the fragility of experimental planning when it is not anchored in enforceable regulatory instruments. While the initial competition and early municipal involvement exemplified *phronetic planning* – embracing contextual learning, architectural storytelling, and public engagement – the subsequent transfer of land ownership and dilution of oversight fragmented this logic. Residents and urban commentators criticised the resulting lack of vibrant public space and diminished fjord access, underscoring that urban sustainability in practice requires not only vision but also institutional resilience and continuity. *Vestre Havnepromenade* (Figure 4.1)



Figure 4.1 Vestre Havnepromenade. ↺

(Photo: Alessandra Badami).

remains an instructive project for understanding the vulnerabilities of Aalborg's early waterfront regeneration. It reflects the risks inherent in transitioning from design-led experimentation to private-sector implementation. As such, the project highlights the need for stronger regulatory frameworks, socio-environmental accountability, and a planning ethos attuned to long-term public value over short-term gain.

In response to sustained critiques concerning the limited green infrastructure of the *Vestre Havnepromenade*, Aalborg Municipality designated parcel *Area H* as a public green space through Local Plan 09 050 (Aalborg Kommune 2000). Conceived as a compensatory measure and symbolic commitment to inclusive urbanism, the site was embedded within a perimeter block, primarily serving adjacent residents. Its inward orientation curtailed its potential as a connective or legible public space. From a governance perspective, the intervention represented an attempt to reassert municipal agency in a planning context increasingly shaped by private-sector interests. However, its reactive and retrospective character limited its transformative capacity: the green space remained disconnected from wider mobility infrastructures, ecological programming, and participatory forms of activation. Viewed through the lens of *Urban Sustainability Governance*, *Area H* represents the risk that sustainability narratives may be mobilised as symbolic or aesthetic gestures rather than as substantive levers. Publicness is not achieved through designation alone but demands strategic siting, inclusive design, and robust institutional embedding.

The Ø-Gadekvarteret Shipyard: From Industrial Legacy to Residential Renewal

Situated between Aalborg's eastern port and the E45 motorway tunnel, the *Ø-Gadekvarteret* historically served as a key site of shipbuilding and maritime production. Following the closure of the shipyard in 1988, the area entered a period of stagnation. In an attempt to preserve its industrial character, Aalborg Municipality adopted a new local plan (Aalborg Kommune 1993b), which restricted land use to light manufacturing, warehousing, and wholesale trade (Thomsen 2020). However, this conservative strategy failed to attract reinvestment. Despite minor cosmetic upgrades, the site remained largely underutilised and disconnected from the city's emergent urban strategies.

Through the lens of *Urban Sustainability Governance*, the persistence of industrial zoning illustrates a form of institutional inertia, wherein outdated land-use regulations constrained the socio-ecological transformation of the site. This regulatory rigidity prolonged the marginalisation of the district, preventing the adaptive repurposing of its latent spatial and material potential.

A paradigm shift occurred in 2003, when a new local plan for the area (Aalborg Kommune 2003) reclassified the *Ø-Gadekvarteret* as a mixed-use residential district. The plan authorised the construction of up to 115,000 m² for housing, offices, education, and leisure, with an emphasis on permeability, solar orientation, and visual openness to the fjord. This new direction aligned with

broad municipal visions articulated in the *Bykatalog* (Aalborg Kommune 1993a) and *Fjordkatalog* (Aalborg Kommune 1999), which identified Aalborg's waterfront as a critical site for sustainable urban regeneration.

From a perspective of *Urban Sustainability Governance*, this project emphasises the importance of negotiated planning, adaptive reuse, and stakeholder collaboration. Heritage preservation featured prominently: the 1918 'Old Yard' engine hall, designed by Einar Packness, which was initially designated for commercial reuse under a new local plan (Aalborg Kommune 2009) and later converted into residential units with an updated local plan for the area (Aalborg Kommune 2014a). This shift shows that institutional agility enabled context-sensitive transformations that honoured both historical continuity and contemporary demand.

The site's former dry dock was transformed into a canal for small boats, connected by a lightweight steel pedestrian bridge that evokes the area's industrial past while maintaining spatial continuity. The public space integrated with the waterfront promenade prioritised walkability, environmental performance, and inclusive access. In contrast to the more fragmented and commodified interventions at *Vestre Havnepromenade*, the *Ø-Gadekvarteret* development offered a spatially coherent and ecologically embedded vision of post-industrial regeneration. Qualitative studies show that the reuse of industrial elements – such as brick surfaces, dock geometry, and the canal infrastructure – helps cultivate strong place attachment and social identity among residents (Blackwell 2000).

From a *Just Sustainability* perspective, the redevelopment demonstrates attempts to align ecological enhancement, heritage valorisation, and accessibility. While the area successfully attracted new populations, questions remain regarding the depth and durability of its social inclusiveness.

Through the lens of *phronetic planning*, the *Ø-Gadekvarteret* (Figure 4.2) illustrates a governance process shaped by situated judgement, reflexivity, and iterative learning. The project did not follow a linear trajectory, but instead it evolved through negotiations and adjustments, responding to the material specificities and historical legacies of the site. It stands as a compelling example which illustrates that urban sustainability does not only concern technical or regulatory undertakings but contested, value-laden, and politically situated processes.

Towards Cultural Foundations for Urban Sustainability in Phase I

The first phase of Aalborg's waterfront transformation emerged from a context of post-industrial urgency and spatial fragmentation. Early interventions – such as *Vestre Havnepromenade* and the *Ø-Gadekvarteret* – reflected a transitional planning rationality that sought to reclaim dismissed spaces and reconnect the city with the fjord. While marked by experimentation and partial gains in terms of accessibility and environmental quality, this phase also highlighted the vulnerabilities of weak regulation, institutional fragmentation, and speculative redevelopment pressures.



Figure 4.2 Ø-Gadekvarteret. ↻

(Photo: Alessandra Badami).

These initial efforts exposed the limits of fragmented governance and reactive spatial strategies, underscoring the need for more integrated approaches to public space provision. Importantly, these experiences laid the groundwork for the emergence of a second phase, which was defined not merely by access and reclamation but also by a deeper investment in cultural identity, placemaking, and symbolic anchoring. As Aalborg's urban ambitions evolved, the waterfront became not only a physical frontier but also a platform for projecting new narratives of public life, urban sustainability, and urban belonging.

Phase II: Cultural Anchoring and Urban Identity (mid-2000s–2010s)

The second phase of Aalborg's waterfront transformation marks a critical juncture in the city's evolving sustainability trajectory. Whereas *Phase I* was defined by ecological remediation and the restoration of public access, *Phase II* signalled a shift towards a culturally mediated form of urban development. During this period, sustainability was increasingly articulated through narratives of identity, memory, and symbolic renewal, thereby bringing the role of cultural infrastructures to the fore in legitimising Aalborg's post-industrial transformation.

The first experience of waterfront regeneration – *Vestre Havnepromenade* – had drawn criticism for the poor quality of public spaces and the absence of

structured dialogue with the local community. In response, the municipal administration adopted a more participatory approach by launching a public consultation in 2001 through the distribution of the booklet *Aalborg Havnefront – til debat* (Aalborg Kommune 2001), which was aimed at citizens, associations, and businesses. The initiative collected proposals and expectations, which highlighted widespread demand for recreational, cultural, and accessible public spaces, in contrast to a regeneration model based solely on real estate valorisation.

Based on the outcomes of this consultation, the City of Aalborg launched an EU tender aimed at finding a consultancy team to collaborate with in order to define a unified masterplan for the central waterfront. The competition was won by a consortium composed of C. F. Møller Architects, COWI, and Vibeke Rønnow Landscape Architects, who later developed the plan in collaboration with the city's technical departments. The entire central harbourfront was conceived as a unified project from the beginning. In fact, the *Musikkens Hus* project was one of the main driving forces from the start. But after the collapse of the first project by Coop Himmelb(l)au, that part had to await a new planning phase for the revised *Musikkens Hus*, this time with Realdania taking the lead, whereas in the first round, the municipality had acted as project manager, with Realdania as sponsor.

The masterplan consisted of the following three main sections: *Jomfru Ane Parken*, *Castle Square*, and the *Utzon Centre*, which became the focus of the first step in the urban regeneration process. The second intervention, which was conceived as an extension of the central waterfront to the east, would have involved three additional areas: *Kvægtorvet*, *Musikkens Hus* and the multifunctional complex *Nordkraft* (these will be further developed in *Phase III*).

Guided by the interwoven logics of *legitimation* and *implementation*, *Phase II* was characterised by strategic investments in emblematic public spaces and architectural landmarks. Projects such as *Jomfru Ane Parken*, *Tolbod Plads* and *Slotspladsen*, *Utzonparken*, and the transformation of *Nordkraft* into a multifunctional cultural centre illustrate that heritage and creativity were mobilised not merely as aesthetic enhancements but also as instruments of governance and civic engagement. These interventions served as spatial and cultural technologies of transformation, which were positioned to rebrand the city as inclusive, liveable, and future-orientated.

In embedding sustainability within cultural identity and citizen-led symbolism, this phase demonstrates that *Urban Political Ecology* extends beyond environmental interventions to encompass the reconfiguration of meaning, aesthetics, and collective belonging. The waterfront became not only a space for ecological recovery or economic restructuring but also a platform for symbolic production and institutional legitimation. This reflects a broader mode of *Urban Sustainability Governance* in which planning operates as a medium through which legitimacy is constructed, publics are engaged, and shared imaginaries of sustainable futures are enacted.

Jomfru Ane Parken: A Green Hinge Between the Historic Centre and the Fjord

Jomfru Ane Parken is a multifunctional urban park developed by Aalborg Municipality in the early 2000s as part of the city's broader waterfront regeneration strategy. The project transformed a 26,800 m² post-industrial harbour-front site – formerly occupied by port infrastructure – into a hybrid public space integrating cultural, ecological, and recreational functions. Its primary objective was to re-establish spatial and symbolic continuity between the historic urban core and the Limfjord, thereby advancing the city's vision of sustainability through inclusive, climate-responsive placemaking.

Located adjacent to the Limfjord road bridge and within walking distance of Aalborg's medieval centre, the park responded to the infrastructural and perceptual disconnect created by Nyhavnsgade, a high-capacity traffic corridor that historically severed the urban fabric from the waterfront. A series of traffic calming measures – including lane reductions, widened pedestrian zones, and new crossing points – reconfigured this relationship, enabling a more porous and accessible urban interface. Positioned near the nightlife district of *Jomfru Ane Gade*, the park was strategically conceived as a spatial hinge between everyday urban life and the natural landscape of the fjord.

Public engagement played a key role in shaping the project. Initiated in 2001 and formalised through Local Plan 10-073 (Aalborg Kommune 2004), the process reflected a shift towards participatory governance and design-based development (Kiib 2012). The resulting spatial programme articulated the site into two primary zones: a western hardscape plaza and an eastern linear green park. The western zone included a two-storey mixed-use structure for public and private services, restaurants, retail spaces, and a children's play area, which was complemented by a multifunctional sports court and Corten steel pavilions to support everyday leisure activities and cultural programming. Adjacent to the building, a multifunctional sports square was created, enclosed by a fence and equipped with lighting. This space was deliberately conceived as non-specialised to ensure flexibility of use and inclusiveness, which made it suitable for hosting various sports and collective activities.

In contrast, the eastern portion was designed for passive recreation and ecological continuity, featuring natural materials – gravel, grasses, and native trees – alongside shaded seating areas, pergolas, and informal play spaces. A raised promenade was constructed as both a recreational pathway and a flood resilience measure, aligning with national climate adaptation strategies. The promenade's wave-patterned paving and viewing platforms evoke the fluid movement of the fjord while reinforcing visual and sensory engagement with the landscape (Møller 2015).

The edge conditions of the site were carefully designed to enable direct contact with the water. Stepped terraces, cantilevered balconies, and an open-air harbour swimming pool encouraged interaction with the fjord. However, the long-term operation of the pool was hampered by environmental constraints such as algae blooms and waterborne debris, as well as competition from newer facilities like *Vestre Fjordpark*.

Jomfru Ane Parken has proved to be one of Aalborg's most visited public spaces. According to the Landezine International Landscape Award (LILA platform), the park attracts approximately 800,000 users annually (LILA 2016). This popularity reflects its success in fostering an open, accessible, and multifunctional urban commons.

From the perspective of *Urban Sustainability Governance*, the park exemplifies a socio-ecological reconfiguration where ecological remediation, climate resilience, and community-driven engagement are entangled in the production of space. It also embodies the principles of *Just Sustainability* by privileging inclusivity, equitable access, and everyday use over commercial spectacle or elite aesthetics. A 2011 municipal survey further confirms public endorsement of the park's flexible design and inclusive programming (Harder et al. 2011).

Governance-wise, the project illustrates a mode of *reflexive and adaptive planning* that is shaped by iterative consultation, cross-sectoral collaboration, and institutional learning. As such, *Jomfru Ane Parken* (Figure 4.3) plays a pivotal role in Aalborg's sustainability transformation by repositioning the fjord's edge as a socially just and ecologically attuned public realm.



Figure 4.3 Jomfru Ane Parken. ◀

(Photo: Alessandra Badami).

Tolbod Plads and Slotspladsen: Reconnection Between the Historic City and the Waterfront

The planning of the individual sub-projects took place in a fully continuous process, with a joint project group across the consultants and the municipal departments. The Local Plan 10-082 (Aalborg Kommune 2006b) aimed to operationalise key interventions outlined in the overarching masterplan and to reinforce urban continuity between the historic centre and the waterfront. It identified three priority areas: the redevelopment of the terminal section of *Østerågade*, the enhancement of the area surrounding *Aalborghus Castle*, and the construction of the *Utzon Centre*, which is addressed separately.

Østerågade, now the city centre's main axis, traces the path of the former *Østera River*, which once flowed into the Limfjord. The river was diverted in 1872 during the construction of the railway station, and its bed was converted into a roadway. With the intensification of port activities and the advance of the coastline, the street gradually lost its connection to the fjord. The regeneration masterplan identified this severance as a critical issue and prioritised the restoration of both physical and symbolic continuity between the historic core and the waterfront. Accordingly, the local plan focused on reconfiguring the junction between the terminal section of *Østerågade* and the fjord, designating *Tolbod Square* as a strategic threshold between city and water.

In 2007, a new public space featuring a musical fountain was created in front of the former Royal Customs House (*Kongelig Toldkammer*), which was simultaneously restored. Anticipating the construction of the House of Music (*Musikkens Hus*), the intervention was conceived as a sensory and symbolic device that reconnected the city to the water. The fountain comprises 20 concentric granite rings with jets that vary in height and intensity. Four times a day, the jets are choreographed to selected excerpts from Händel's *Water Music*. A wide stepped platform extends the visual axis of *Østerågade* to the fjord, offering direct access to the water's edge. This intervention re-established visual and perceptual continuity with the fjord and contributed to the emergence of a renewed urban identity. Over time, the square and its fountain have become one of the most visited and photographed places in Aalborg, gaining iconic status in the representation of the regenerated waterfront.

To the east of *Tolbod Square* (Figure 4.4) stands *Aalborghus Castle*, a key element of the city's architectural heritage. The 16th-century building, arranged around a trapezoidal courtyard and flanked by grassy embankments, had become disconnected from the fjord due to the construction of the bus terminal and the high-speed Nyhavnsgrade road, which impaired both its visibility and accessibility.

To restore the castle's connection to the waterfront and enhance its urban presence, the local plan called for the demolition of the adjacent bus terminal and the realignment of Nyhavnsgrade. The revised layout introduced a more sinuous road section with a central green strip, deliberately avoiding tall plantings to preserve views of the historic building. The forecourt, named *Slotspladsen*, was landscaped as a public lawn with direct access to the fjord. Due to its



Figure 4.4 Tolbod Plads. ↵

(Source: Photo: Enza Lissandrello).

flexible design, the square now regularly hosts official events, cultural activities and open-air performances. On such occasions, Nyhavnsgade is temporarily closed to traffic, which enables full pedestrian use and reinforces the symbolic reconnection between the city and its waterfront.

Utzonparken: Architecture, Landscape, and City Branding

Utzonparken marks a significant point in Aalborg's waterfront transformation, exemplifying how cultural infrastructure, landscape design, and architectural heritage can be mobilised to rearticulate urban identity. One of the preconditions of this development was that Aalborg Municipality acquired the waterfront site from the Port Authority long before, and this has allowed a certain 'public management' of this development. Anchored by the *Utzon Centre* – a hybrid cultural facility designed by Jørn Utzon in collaboration with his son Kim Utzon – this intervention combines ecological design, symbolic place-making, and strategic governance to reconfigure the post-industrial waterfront into a site of community-driven engagement and sustainable imagination.

The *Utzon Centre* was realised through a partnership between Aalborg Municipality and Aalborg University. Initially, the project emerged as an alternative recipient of EU structural funds, which had originally been allocated to

the delayed *Musikkens Hus*. In an act of institutional agility, the municipality redirected these funds, transferring them to the Utzon Foundation with a limited timeline. The convergence of public investment, philanthropic governance, and collaboration with Aalborg University exemplifies the layered institutional framework underpinning this phase of urban regeneration. The background of the *Utzon Center* came from Aalborg University's research on Jørn Utzon's methods and life, but the real driving force was the strength of the collaboration of the municipality and the partnership in making this idea happen in this context. Architecturally, the Centre comprises a series of pavilion-like structures arranged around a central courtyard. The building's sculptural metal roofs, which evoke sails, waves, and maritime sheds, establish a dynamic visual relationship with the Limfjord and shift in appearance with changing light conditions. This spatial composition draws inspiration from Mediterranean courtyards and Scandinavian landscape traditions, thereby responding to both climatic conditions and the sensory dimensions of public space. Internally, the Centre includes exhibition halls, design studios, research labs, a specialised library, and public gathering areas. A panoramic restaurant, *Jørn*, offers expansive views over the fjord, while the boathall contains a full-scale model vessel used for architectural pedagogy. The building's material language – particularly its use of reflective surfaces and concrete furnishings – draws on Utzon's philosophy of 'additive architecture', which is a modular and nature-inspired design approach (Frampton 2004). Notably, concrete benches in the courtyard, originally designed for the *Sydney Opera House*, embed continuity between Utzon's global architectural legacy and the site's local context.

The surrounding park extends this architectural narrative into the landscape. Conceived as a semi-natural woodland, *Utzonparken* features native trees, open lawns, tactile surfaces, and integrated furnishings that promote biodiversity, recreation, and informal social interaction. Three student housing towers, designed by Jørn and Kim Utzon, accommodate 63 university residents. Strategically placed to maintain visual access to the waterfront, these structures balance verticality and permeability, thereby reinforcing the site's multifunctional character. From a theoretical perspective, *Utzonparken* exemplifies a *phronetic planning* whereby a long-term vision is balanced with contextual sensitivity, institutional flexibility, and symbolic meaning-making. Through the integration of architectural heritage, ecological continuity, and community-driven programming, the project attempts to enact the principles of *Just Sustainability*, privileging inclusivity, public access, and cultural plurality over commercial spectacle. At the same time, it embodies key tenets of *Urban Sustainability Governance*, revealing that cultural infrastructure can operate as a socio-material assemblage that mediates identity, power, and environment. However, *Utzonparken* (Figure 4.5) also resonates with broader Nordic cities' trends in waterfront redevelopment. Like the *Oslo Opera House* waterfront, *Malmö's Western Harbour*, and *Gothenburg's Västra Hamnen* development (Baeten 2012; Røe et al. 2022), it exemplifies a model in which



Figure 4.5 Utzonparken. ↻

(Photo: Alessandra Badami).

iconic architecture, climate adaptation, and cultural activation coalesce to legitimise urban transformation. Within this symbolic urbanism, *Utzonparken* repositions Aalborg as a city that leverages design, ecology, and memory, attempting to rearticulate more sustainable urban futures.

Nordkraft: From Industrial Engine to Cultural Engine

The transformation of *Nordkraft* (Figure 4.6) exemplifies Aalborg's shift towards adaptive reuse as a central strategy of urban regeneration, which brings memory, identity, and inclusive cultural infrastructure to the fore. Originally constructed in its entire form in 1947 as a coal-fired power station employing over 380 workers, *Nordkraft* was once one of Aalborg's largest industrial facilities (Janoušková 2015). When decommissioned in 1999, city planners opted not to demolish it, deciding instead to reinvent it and preserve its architectural form while reimagining it as a community-driven anchor for cultural, educational, and recreational life. The process was formalised through Local Plan 10-075 (Aalborg Kommune 2006a), which outlined conservation principles, including the restoration of the façade, the replacement of iron-framed windows, and the retention of original structural and material elements. The design tender, which was awarded to Cubo Arkitekter, embraced a preservation-first approach, thereby maintaining the integrity of five key volumes: the

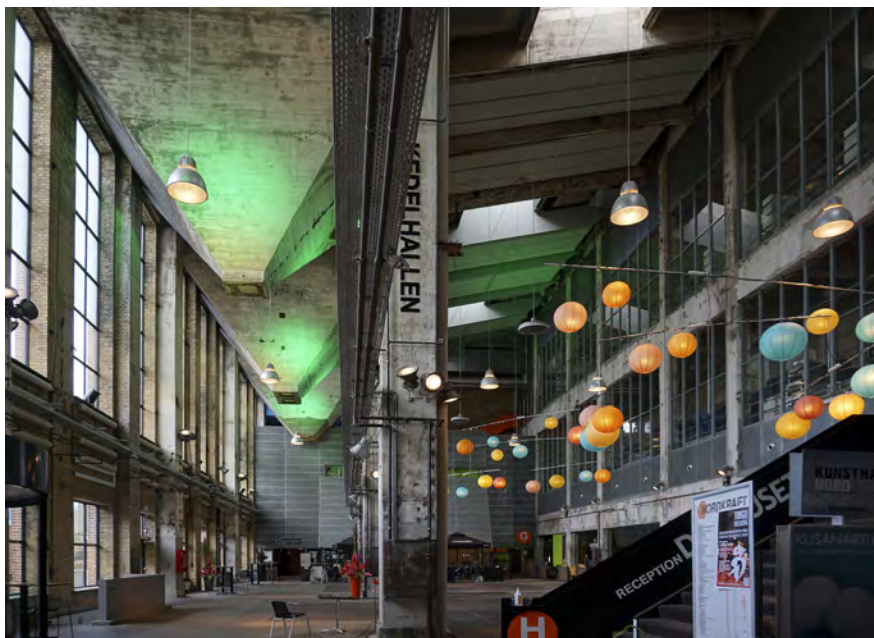


Figure 4.6 Nordkraft. ↻

(Photo: Alessandra Badami).

red-brick *boiler hall* (*Kedelhallen*), the white-vaulted *Turbinehal* (turbine hall), the *vertical tower* (*Tårnbygning*), the checkerboard-façade *boiler house* (*Kedelhuset*), and the *transformer building* (*Transformerbygning*). Only minimal vertical extensions were allowed, which ensured that the building's industrial character and presence on the skyline remained intact. The renovation strategy by *Cubo* prioritised material authenticity and spatial continuity. Interior surfaces were left visibly raw: rusted steel beams, concrete walls, ageing silos, and ductwork were not concealed but celebrated as part of the building's industrial history (Danish Architecture Center 2023). Spatial organisation followed a logic of atmospheric zoning. Enclosed, darker volumes were converted into black-box theatres, cinemas, climbing facilities, and rehearsal studios. In contrast, transparent and high-ceilinged spaces on the ground floor were programmed for cafés, galleries, and libraries, while the central indoor community-driven plaza, *Kedelhallen*, was conceived of as a democratic space that connected the building to its urban surroundings.

One of *Nordkraft*'s most distinctive design elements is the three-storey steel-clad container, which is suspended inside *Kedelhuset*. This inserted structure houses Denmark's tallest indoor climbing wall, a 20-metre vertical facility operated by Danske Gymnastik- & Idrætsforeninger (DGI) Nordjylland (Danish Gymnastics & Sports Associations), which retains the volume of the space

while transforming it into a place for public recreation. A new circulation tower was also added to the north-eastern corner, which provides elevator access and reinforces visual continuity with nearby *Musikkens Hus*, thus connecting *Nordkraft* to the cultural corridor along *Musikkens Plads*.

As well as its architectural achievement, *Nordkraft* was conceptualised as a collaborative cultural ecosystem. Aalborg Municipality retained 6,500 m², while the remaining space was activated by a diverse set of community-driven, cultural, and entrepreneurial actors – including DGI, Skråen (live music venue), *Teater Nordkraft*, *Biffen Art Cinema*, *Kunsthall Nord*, the *KUL* youth centre (which is part of the municipality's 'condominium unit' as a municipal youth club), and the *Dreamhouse* startup incubator. Functions span from performance and education to sports, health, entrepreneurship, and informal learning. Dedicated facilities support young people, marginalised communities, and disabled athletes, reflecting a deliberate commitment to spatial and social inclusivity (Badami 2021).

Managed through a shared owners' association, *Nordkraft* (Figure 4.6) has demonstrated high institutional adaptability. It operates as a public-access space with approximately 35,000 weekly visitors, and it is open daily for a wide variety of events, practices, and everyday uses. In this respect, it functions as a living urban commons, a site of cultural production, well-being, and public encounters (Danish Architecture Center 2023).

From a theoretical perspective, *Nordkraft* exemplifies *phronetic planning* when concerning contextual responsiveness and incremental experimentation. It also reflects the logic of *Urban Sustainability Governance* by reconfiguring industrial infrastructure into a socio-material node of ecological and cultural value. Moreover, it enacts the principles of *Just Sustainability*, emphasising equity, accessibility, and multifunctionality in its spatial and institutional design. Although *Nordkraft* lies slightly inland from the Limfjord, its spatial and symbolic proximity to *Musikkens Hus* and *Utzonparken* connects it integrally to Aalborg's broader concept of Aalborg waterfront regeneration. It embodies a hybrid logic of legitimation and implementation as a project in which industrial heritage is not merely preserved but made productive through cultural innovation, urban integration, and community-driven participation. Together with *Jomfru Ane Parken* and *Utzonparken*, *Nordkraft* illustrates that post-industrial cities can draw on memory and materiality to shape just, resilient, and future-orientated urban transformation.

Towards Cultural Foundations for Urban Sustainability in Phase II

Phase II of Aalborg's waterfront transformation was defined by the strategic mobilisation of cultural infrastructure, architectural symbolism, and adaptive reuse to anchor sustainability in urban identity. Through projects such as *Jomfru Ane Parken*, *Tolbod Plads*, *Slotspladsen*, *Utzonparken*, and *Nordkraft*, the city reconfigured its post-industrial landscape into a multifunctional and inclusive community-driven realm. These interventions reflect a hybrid logic of

legitimation and implementation, whereby built heritage and cultural production served as instruments of placemaking, governance, and democratic renewal.

As the city entered the 2010s, the emphasis began to shift from cultural-symbolic regeneration to integrated strategies that were centred on infrastructure, institutional capacity, and climate-responsive planning, which marked the onset of *Phase III*.

Phase III: Spatial Integration and Governance for Urban Sustainability (2010s–Present)

The third phase marks a paradigmatic shift in Aalborg's waterfront transformation, from spatial experimentation and cultural anchoring to the governance of urban sustainability as a negotiated and institutionally embedded process. This phase is defined by a growing reliance on planning frameworks, participatory mechanisms, and symbolic spatial interventions to render sustainability actionable in complex urban contexts.

Across projects such as *Musikkens Hus*, *Create*, *Østre Havn*, *Vestre Fjordpark*, and *Spritten*, urban sustainability is not pursued solely through material improvements but more than in the previous phase by situated practices shaped not only by spatial design but also by procedural negotiations not always aligned by consensus, in which planners had to place great work in facilitating a cultural co-production. In addition, *Musikkens Hus* and *Create* also constitute an example of symbolic architecture that gives material forms to imaginaries of sustainability in the use of materials and forms. *Østre Havn* is an example of compact urban form and strategic densification being mobilised as devices for climate-responsive development. Although considerable efforts were made by planners to incorporate non-profit housing – including both student and family-orientated units – into the development of *Østre Havn*, the proliferation of condominiums along the harbourfront has raised critical questions regarding access, affordability, and socio-spatial justice. These emerging dynamics highlight the tension between inclusive housing ambitions and the market-driven logics shaping prime waterfront redevelopment. *Vestre Fjordpark* exemplifies a design ethos rooted in inclusive ecological urbanism, whereby public space and collective well-being are central to sustainability aspirations. *Spritten*, by contrast, reveals the tensions and fragilities of culture-led urban regeneration processes at the intersection between entrepreneurial ambition, procedural legitimacy, and complex governance.

Musikkens Hus: Architecture, Governance, and Community-Driven Transformation

Within the third phase of Aalborg's waterfront regeneration, architectural experimentation emerged as a strategic instrument for reinforcing the city's identity and advancing its position within cultural and ecological urban agendas. The eastern harbour was designated in Aalborg's municipal masterplan as

an ‘Architectural Experimentarium’ and envisioned as a testing ground for formal innovation, spatial reactivation, and expanded community-driven life. A pivotal catalyst in this transformation was the *Musikkens Hus* project, which, despite undergoing an initial collapse, was later reactivated and ultimately redefined in the planning agenda for the entire eastern harbourfront. Initially situated closer to the city centre, the project was relocated further east when *Østre Havn* ceased industrial operations around 2007, making the area newly available for urban redevelopment. Prior to this, the site had been designated as a buffer zone between the city and the industrial harbour.

Through its evolving timeline and high-profile cultural programming, the *Musikkens Hus* project came to structure not only the spatial orientation of the eastern waterfront but also its development phases and planning priorities. It served as a central anchor for the area’s transformation, setting the tone for subsequent architectural, community-driven, and ecological ambitions (Jensen 2020).

A central anchor of this vision is *Musikkens Hus* (House of Music), a high-profile cultural facility that crystallises the city’s post-industrial ambitions. First proposed in the early 2000s, the project aimed to transform former port land into a multifunctional node for education, performance, and public life. Backed by financial support from the Realdania Foundation, the initiative materialised through a public-philanthropic partnership, which made it feasible but also introduced governance asymmetries and limited public consultation, raising concerns regarding democratic legitimacy and inclusiveness.

An open international architectural competition that was carried out in two phases; the first included a prequalification process, and the second phase was therefore conducted among the prequalified teams. The final design competition in 2002 awarded the commission to Coop Himmelb(l)au. Completed in 2014, the 22,000 m² facility houses a 1,250-seat concert hall, facilities for Aalborg University and the North Jutland Conservatory, and a large community-driven foyer. Its dynamic design – marked by cantilevered volumes, curved geometries, and transparent curtain walls – projects a new community-driven imaginary that intertwines the fluidity of the Limfjord with high-performance architecture.

The interior of the building incorporates advanced acoustic features, including amoeba-patterned gypsum-fibre panels developed for excellent sound performance and spatial aesthetics. These innovations highlight the role of material experimentation in delivering not just form but high-performance functionality.

The adjacent *Musikkens Plads* reinforces this community-driven ambition, integrating symbolic memory with adaptive landscaping of the Limfjord. Low-impact materials and ecological design strategies align the square with broader urban sustainability goals.

Functionally, *Musikkens Hus* exemplifies hybrid urban programming. As both an educational institution and cultural venue, the building remains active throughout the day and across seasons, thereby contributing to a vibrant community-driven realm. Technologically, it embodies Denmark’s commitment to climate-resilient public infrastructure by employing passive ventilation,

fjord-cooled systems, daylight optimisation, and integrated photovoltaic solutions. Comparable to Scandinavian precedents, the *Musikkens Hus* advances Aalborg's cultural and urban profile (Jensen 2007, 2020). According to e-Architect, the interplay between the building's curved interior and cubic outer volumes represents a sort of 'liquid poetic form', which articulates a spatial dialogue between dynamism and institutional solidity.

From a *phronetic planning* perspective, the project aligns architectural vision with local values, institutional partnership, and incremental learning. Nevertheless, the limited participatory process reveals enduring challenges around democratic accountability in flagship developments.

As both a spatial and symbolic landmark, *Musikkens Hus* (Figure 4.7) illustrates that medium-sized cities can leverage architectural excellence and cross-sector collaboration to catalyse sustainable urban transformation while navigating the trade-offs between innovation, institutional efficacy, and community-driven representation.

The requirement for a 350-space underground car park to serve *Musikkens Hus* led to the demolition of *Kvægtorvet*, the historic livestock market situated within the emerging *Musikkens Hus* cultural district and initially designated for conservation and adaptive reuse under Local Plan 1-1-104 (Aalborg Kommune 2010). A reconstruction plan – entrusted to private investors – was abandoned after the 2008 financial crisis, opening the way for Coop Himmelb(l)au and Realdania to lead new development focused on student housing,

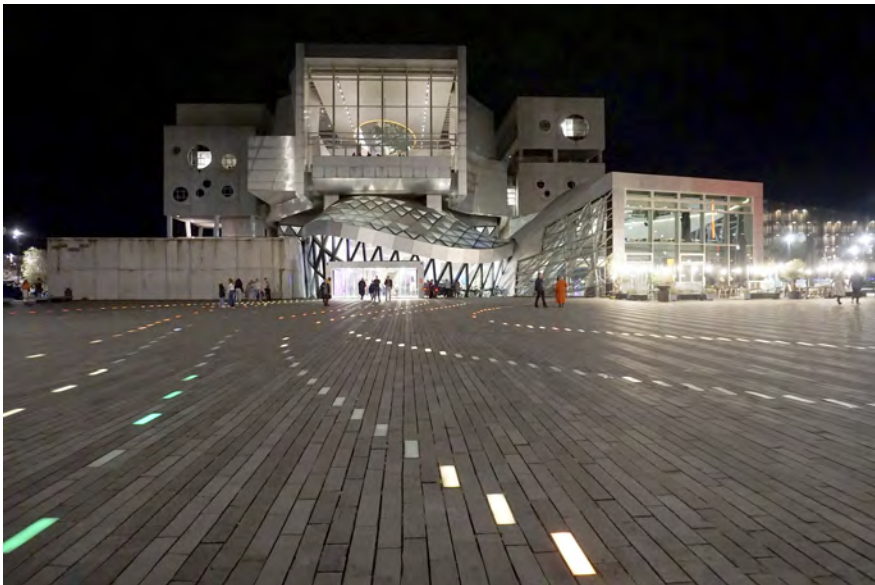


Figure 4.7 Musikkens Hus. ↺

(Photo: Alessandra Badami).

expanded parking, and mobility infrastructures. From the perspective of *Urban Sustainability Governance*, this shift prioritised infrastructural modernisation over local continuity. While the car park aligns with densification and cultural access goals, the decision compromised place-based memory and community meaning. Viewed through *Just Sustainability*, the *Kvægtorvet* project raises critical questions about whose histories are preserved and whose are displaced in the name of urban renewal.

Create Campus: Embedding Education and Public Space in the Fjordfront

The *Create Campus*, which is situated between the *Utzon Centre* and *Musikkens Hus*, stands out as one of the most architecturally and programmatically ambitious components of Aalborg's waterfront transformation. Designed by Henning Larsen Architects in collaboration with A. Enggaard and inaugurated in 2013, the development hosts creative faculties from Aalborg University – including Architecture, Design, and Media Technology – alongside student residences. Covering approximately 20,000 m², the complex accommodates around 900 students, faculty, and administrative staff.

This intervention emerged as a strategic response to the post-industrial imperative of reactivating underutilised land through education-led regeneration. It exemplifies a deliberate effort to reframe the waterfront as a community-driven interface for knowledge production, cultural engagement, and urban innovation. Positioned between two prominent cultural anchors, the *Utzon Centre* and *Musikkens Hus*, *Create* strengthens the connective tissue of Aalborg's cultural corridor (Ponzini & Akhavan 2020).

Architecturally, *Create* embraces a transparent and inclusive spatial ethos. The building's northern façade, fully glazed and double-height, faces the Limfjord and features a public foyer with a café, auditorium, and exhibition space. This configuration reinforces visual permeability and spatial openness, extending the urban promenade into the institutional domain and blurring distinctions between university functions and public life. The foyer symbolically anchors the university's creative disciplines within the rhythms of everyday urbanity, fostering an ethos of co-production and community-driven interaction.

At the heart of the complex lies a south-facing courtyard, conceived as a multifunctional event space. It serves as a platform for student exhibitions, concerts, and open-air film screenings, which aligns it with a legitimisation strategy rooted in accessibility and public relevance. Ground-level workshops, also fully glazed, expose creative activity to passers-by and support principles of Scandinavian democratic education and spatial transparency.

Adjacent to the main building is a student housing complex, which was also designed by Henning Larsen Architects. The complex comprises 9,600 m² and 240 units. Designed in a stylised 'Z' formation, the buildings reach up to 14 storeys (~50 metres), thereby echoing nearby industrial structures while preserving sightlines to the fjord. The housing is integrated with the broader landscape strategy: terraces, green beds, benches, and play areas form an active transition between private residences and the public waterfront.

The lighting design for the entire harbourfront was commissioned to ÅF Lighting – now known as Light Bureau – who were involved throughout all phases of the project. While the lighting concept was developed independently, there was close and continuous collaboration across the various consultancy teams to ensure an integrated design approach. The lighting design received the City.People.Light Award in 2014 and enhanced the experiential and ecological qualities of the promenade (Møller 2016). Combined, these design elements reinforce Aalborg’s commitment to active mobility, inclusive public space, and climate-conscious design.

Local feedback gathered through interviews and planning documentation (Aalborg Kommune 2013) underscores *Create*’s success in enhancing daily life at the waterfront. Citizens and students alike emphasised the openness and liveliness of the area, and local media praised the *project’s integration of education with everyday urban rhythms*. The Municipality of Aalborg has included *Create* (Figure 4.8) as a model for ‘cross-sectoral cooperation between education, culture, and urban development’ as a part of the young people strategy for future planning initiatives (Aalborg Kommune 2020).

Viewed through the lens of *Phronetic Planning* and *Urban Sustainability Governance*, *Create* exemplifies a synthesis of normative ideals – openness, co-production, and ecological awareness and a policy for future generations, translated into built form. As such, *Create* affirms Aalborg’s evolving identity – in the making – as a city of knowledge.



Figure 4.8 Create Campus. 𐀀

(Photo: Alessandra Badami).

Østre Havn: Strategic Regeneration and Participatory Frameworks

The *Østre Havnebassin*, located in the eastern part of Aalborg's port, was originally constructed between 1901 and 1903 to support the city's industrial expansion. For more than a century, the basin served a strictly productive function, characterised by facilities for grain and feed processing and storage. With the decline of industrial activity and the demolition of associated structures, the area was marked as a strategic priority for urban regeneration within the municipal plan.

In 2006, ownership of the former harbour site was formally transferred from the Port Authority to a development consortium consisting of a local private investor and the construction company A. Enggaard A/S. This transfer marked a pivotal moment in Aalborg's urban transformation, prompting the Municipality of Aalborg to initiate a comprehensive strategic planning process for the eastern harbourfront.

As part of this initiative, the municipality launched a parallel commission process involving five interdisciplinary consultancy teams, each tasked with investigating and articulating distinct spatial and programmatic qualities across the *Musikkens Hus* and *Østre Havn* areas. Although the scope included both zones, public and professional discourse largely centred on *Østre Havn*, as the siting of *Musikkens Hus* in the western portion of the district had already been predetermined. The teams were invited to propose visionary strategies addressing a range of thematic priorities, including high-rise urbanism – referred to as the 'little Manhattan' concept – vibrant urban life, the design of public space, and long-term sustainability.

The process was framed by a preliminary phase of public dialogue in which guidelines for the site's transformation were debated and co-developed with stakeholders, thereby reinforcing a collaborative planning ethos. Physically and symbolically segregated from the city due to its dense industrial frontage, the *Østre Havn* area had long been inaccessible. To counter this legacy, the municipality initiated what it termed a 'mental transformation' of the site. Through temporary urbanism strategies – including a beach bar, a wakeboard cable park, and events such as open-air cinemas and music festivals – the site was reopened to the public. These initiatives symbolically reappropriated the space and cultivated a sense of belonging and anticipation among citizens (Aalborg Kommune 2012a).

These temporary activations as 'everyday strategie' for placemaking have been essential to bringing *Østre Havnebassin* back into public life and performing symbolic reclamation. Such early-stage activations nurtured a sense of collective belonging and tested community engagement models prior to full-scale redevelopment.

Five architectural firms were then invited to submit conceptual plans between 2008 and 2010. The outcomes of such plans informed the drafting of a Quality Programme (*Kvalitetsprogram*), which was a flexible, non-prescriptive planning tool designed to guide the transformation over time. Given the

area's 11.5-hectare scale and anticipated long-term redevelopment timeline, the municipality favoured a dynamic and adaptive framework over rigid zoning instruments.

The *Quality Programme* for Østre Havn was coherently integrated into the municipal strategic plan and promoted a model of urban development based on the concept of 'integrated sustainability', articulated through a systemic vision. This approach was visually represented by an ideogram known as the *Sustainability Flower* (Chapter 3), in which each 'petal' corresponds to a thematic component. In the Østre Havn (Figure 4.9a) project, the largest petal of the flower is dedicated to *environmental sustainability* (*Miljø*), which is pursued through strategies of urban densification, the energy optimisation of the building stock, the promotion of active mobility (in particular cycling), and the enhancement of public transport. Next in importance is the petal concerning the *valorisation of local values* (*Lokale Værdier*), which are translated into human-scale urban design with particular attention paid to the creation of urban microclimates (shelter from wind, sunny and shaded areas), the restoration of historic buildings, and architectural experimentation. *Social sustainability* (*social*) is pursued through the provision of a functional and typological mix which responds to the needs of a diverse population in terms of age, family composition and economic conditions. Public spaces such as the waterfront, the dock, and the *Star Square* (*Stjernepladsen*) are designed to be inclusive, well-equipped, and flexible devices that can accommodate a plurality of uses.

The petal relating to *economic sustainability* (*Økonomi*) considers the spatial attractiveness of a district; high spatial attractiveness encourages the establishment of economic activities. In the case of Østre Havnebassin, this is boosted thanks to its close proximity to two major cultural hubs, *Musikkens Hus* and *Nordkraft*. Active façades, ground floors open to the public realm, and high-quality urban furniture are regarded as favourable conditions for commercial vitality. Lastly, the *natural* (*Natur*) component is represented by the smallest petal of the flower. This does not mean that the component lacks importance; it is rather a reflection of the urban density of the area. To compensate for the scarcity of green spaces, the plan includes the strengthening of ecological connections with the Østerå river corridor (Chapter 6) and the creation of pocket parks, rooftop gardens and green roofs with the aim of increasing urban biodiversity and improving the local microclimate. As part of the *Quality Programme*, a series of thematic design scenarios was articulated to guide urban planning decisions structured around strategic intervention zones intended to ensure morphological, functional, and landscape coherence throughout the regeneration process (Figure 4.9b).

Firstly, the programme divided the district into five territorial sub-areas, each characterised by specific spatial and functional identities to promote greater urban legibility and more effective governance of the transformation process. At the same time, an analysis of potential 'gravitational centres', which

are urban nodes that can attract activity and social interaction around which the settlement structure and public space are organised, was conducted.

Particular attention was devoted to the landscape value of the port areas and quays along the Limfjord, which were considered fundamental to the identity of the area. These were to be safeguarded and enhanced through a design approach sensitive to the relationship between water and city. The interface between urban areas was also addressed through the identification and qualification of transition zones with the aim of ensuring perceptual, functional and morphological continuity between spaces of varying nature and use.

Additional topics addressed included dividing open space into the categories public/semi-public/private, and the green infrastructures. Taken together, these elements could guide the area's transformation in accordance with the principles of urban quality, sustainability, and settlement coherence.

Each of *Østre Havn's* five sub-areas had its own spatial and functional identity: *Kilens Kvarter* (the green wedge quarter), *Stjerne Kvarter* (the star quarter), *Pierne* (the pier), *Nyhavnsgade Kvarter* (the new harbour street quarter), and *Havnebassin* (the harbour basin). This subdivision provided a governance framework that could be adapted to the diverse areas based on the evolving development process.



Figure 4.9 (a) Østre Havn (Photo: Alessandra Badami); (b) The flower of sustainability developed for the Østre Havn project. ♪

(Graphic elaboration by Alessandra Badami. Source: Aalborg Kommune 2012a).

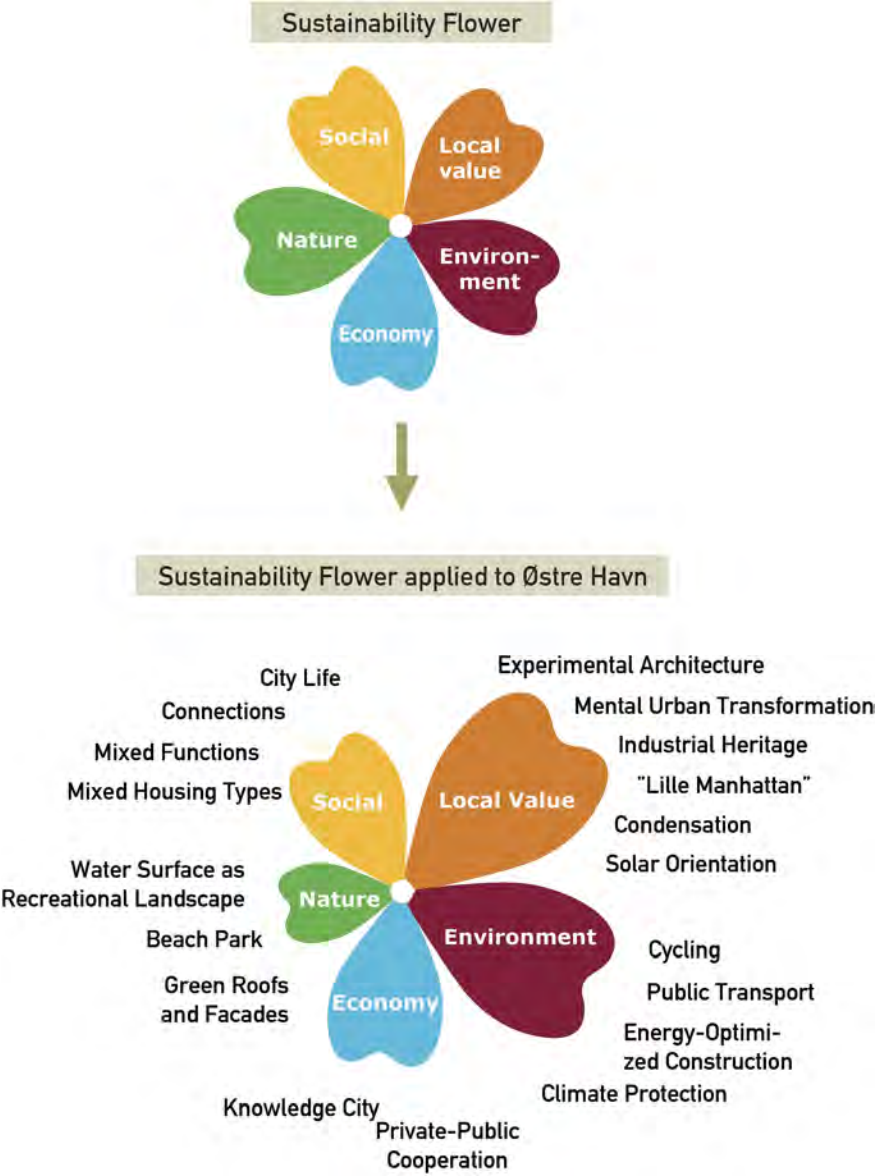


Figure 4.9 (Continued).

Particular attention was given to spatial hierarchies and the creation of internal ‘gravitational centres’. The *Stjerne Kvarter* was envisioned as the core district, with *Stjernepladsen* established as its central public square and focal node. A radial pathway system, tracing the site’s industrial legacy, was introduced as both a structuring element and a vibrant public realm, integrating active

frontages, open-air sculptures, and curated landscape interventions. Meanwhile, *Pierne* was designated as a mixed-use residential and commercial area, intended as a dense and multifunctional urban zone. *Havnebassin* was prioritised for recreational activities and to reconnect the city symbolically and physically with the waterfront.

The plan for *Kilens Kvarter* was mainly residential and served as a transition zone between a dense urban area and ecological space. In contrast, *Nyhavnsgade Kvarter* was planned as a commercial corridor along a key infrastructural axis. The waterfront and quays were considered key resources in terms of the identity of the area, so they were to be preserved and enhanced through good design. Transitional buffer zones promoted continuity between new and existing urban forms.

The Quality Programme envisioned the waterfront as a linear infrastructure. The public promenade was to be extended and upgraded to transform *Østre Havnebassin* into a leisure destination, with the inner basin exposed to the sun all day.

Lightweight and temporary structures such as floating platforms, piers, and recreational docks were proposed to make the waterfront as accessible as possible to the public. Complementary thematic strategies addressed the public-private continuum, urban ground articulation, and green infrastructure.

The results of the Quality Programme were institutionalised in March 2012 when the municipality adopted Local Plan 1-4-106 (Aalborg Kommune 2012b), thereby initiating the transformation of *Østre Havn*. The plan proposed a high-density urban district – a ‘Little Manhattan’ – which combined industrial heritage with modern architecture. High-rise buildings (up to 75 metres) were introduced to evoke the former industrial skyline. The term ‘Little Manhattan’ originated during the parallel commission process in 2007, where this narrative was introduced as part of the conceptual framework for the future development of *Østre Havn*. The narrative gained wider traction following public commentary by the then city architect, who framed urban density as a key driver of vibrancy and metropolitan character (Aalborg Kommune 2012a). The planning process incorporated *selective preservation* of industrial structures, including grain elevators, drying towers, and warehouses. New architectural elements sought to reference industrial typologies through design features such as exposed cranes and spiral staircases. The former rail line served as a spatial axis for the realignment of streets and block structures. Each development phase was regulated by detailed local planning provisions, ensuring consistency within a broader strategic framework.

The regulatory framework included Local Plan 1-4-106 (Aalborg Kommune 2012b) and consequently the Local Plan 1-4-114 (Aalborg Kommune 2020), which addressed land use, environmental protection, and mobility networks. The emphasis on stakeholders’ involvement echoed once again *Østre Havn*’s participatory ethos.

The public discourse surrounding the redevelopment of *Østre Havn* in time showed a significant positive shift in public perception, especially after the

completion of *Stjernepladsen*, which contributed visibly to the area's spatial identity and a sense of place. The square served as a catalyst for reimagining *Østre Havn* as a liveable and distinctive urban district. Through the lens of *Urban Sustainability Governance* and *Just Sustainability*, *Østre Havn* emerges as a mature case of urban regeneration. Adaptive and democratic planning practices were pursued to translate Aalborg's waterfront into a platform for community-driven and ecological renewal. Yet, the process also illuminates enduring challenges: densification has provoked critique regarding visual disruption and gentrification, while rising property prices, especially on the waterfront, have reduced affordability and might exclude segments of the population. The aspiration of social and spatial equity is critical when regeneration is steered by market logic rather than inclusive governance.

Vestre Fjordpark: Nature-Based Urbanism and Collective Well-being

Vestre Fjordpark, which covers approximately 165,000 m² in the western part of Aalborg along the shore of the Limfjord, constitutes one of the city's principal public green spaces. At its heart lies a historic outdoor swimming facility, which has been in operation since 1949 and which receives an average of 80,000 visitors annually, demonstrating its strong collective and recreational value. Despite the park's deteriorating original infrastructure, its regeneration was delayed for years due to its tentative designation as a potential landing point for a future Limfjord bridge. It was only in 2012, following the definitive location of the bridge elsewhere, that Aalborg Municipality unlocked the area's redevelopment potential.

In 2013, a public design competition was held, resulting in the selection of the proposal 'Working with Nature' by LiW Planning in collaboration with Force4 Architects. This laid the foundation for Local Plan 3-4-102 (Aalborg Kommune 2014b), which established the regulatory and programmatic framework for the redevelopment. The jury report from the competition emphasised the capacity of the project to integrate the natural swimming pool, sandy spit, and wooded areas into a cohesive recreational, cultural, and ecological environment. To legally support the vision, a supplement to the local plan was adopted, which adapted regulations to permit bathing in the fjord, ensuring spatial coherence and connectivity with the adjacent neighbourhood. The redesign adopted a site-specific, ecological approach, which enhanced a green buffer zone planted with trees, which created a transitional interface with surrounding urban areas and mitigated noise and visual impacts. Three main entrances – to the east, south, and west – ensured multimodal access with facilities for bikes and parking places. The *Vestre Fjordpark* concept has been thought of as a continuous pedestrian zone promoting soft mobility and leisure. Sports infrastructures and the public swimming pool included a 50-metre lap pool, rafting circuit, children's water play zones, mixed land-water routes, and sandy-bottomed shallow pools.

On the northern edge, a suspended linear wooden structure – anchored to the ground at both ends – serves as both a unifying roofscape and a compositional element, sheltering a range of facilities including changing rooms, sports association spaces, recreational areas, a café, and play zones. Integrated with planted sections, the wooden roof unfolds across multiple levels, offering wind-sheltered areas and panoramic viewpoints equipped with hammocks, stepped seating, and platforms facing the fjord. Additional sports facilities include beach volleyball and basketball courts, football fields, climbing walls, fitness circuits, and a multi-use arena for outdoor performances and events.

Zones for relaxation and contemplation are integrated throughout the park: dunes, solariums, cooking areas for communal barbecues, and panoramic towers adapt the space to various user groups. The project integrated educational and cultural dimensions, now materialised into information about historical features such as bunkers and bastions from the former shooting range and an information centre with the natural and cultural history of the Limfjord.

Vestre Fjordpark has received widespread praise from the public. Public reception has been broadly positive, with the park being described as a beloved urban oasis and a vital green lung of the city. Local forums and newspapers have celebrated the area as an ‘imaginative learning and experience zone’ that integrates nature, sport, and pedagogy, highlighting the public’s engagement initiatives along the fjord and the integration of the environment into urban recreation.

The park has also been cited in various international forums for Aalborg’s evolving green-blue infrastructure network and its broader agenda to improve urban resilience and citizens’ well-being. Strategic documents (Aalborg Kommune 2019) further underscore Aalborg’s focus on a long-term vision for ecological and inclusive urban development.

Vestre Fjordpark stands as a notable example of peri-urban ecological regeneration, integrating architecture, sustainability, and an inclusive emphasis on public well-being. In contrast to *Østre Havn* and *Musikkens Hus* – which embody a planning model orientated towards city branding and the adaptive reuse of deindustrialised sites – *Vestre Fjordpark* represents a landscape-driven approach to urban regeneration. Its development foregrounded social activation strategies aimed at engaging diverse population groups across age and demographic lines. From the perspective of *Just Sustainability* and *Urban Sustainability Governance*, *Vestre Fjordpark* (Figure 4.10) underscores principles of green-blue infrastructure, urban resilience and social inclusion. It embodies *urban sustainability* in the promotion of public accessibility, well-being, and shared ownership of nature-based public spaces.

Spritten: Heritage Conflicts, Cultural Production and the Fragility of Urban Visioning

Spritten was the first of Aalborg’s industrial districts developed during the early 20th century. Located in a strategic area between the Limfjord and the railway, it became a hub of production, which helped to spur the city’s urban growth.



Figure 4.10 Vestre Fjordpark. ↵

(Photo: Alessandra Badami).

The *Spritten* area was occupied by the *Danske Spritfabrikker*, the national factory for spirits and yeast, which achieved landmark status through the internationally recognised name of *Aalborg Taffel Akvavit*. The *Aalborg Taffel Akvavit* is a cumin-based spirit widely known as ‘Red Aalborg’, named after the industry’s iconic red symbol; the factory became a powerful cultural marker and a defining element of the city’s identity.

Designed by Alfred Clock-Clausen and constructed between 1929 and 1931, the factory complex remains today largely intact. In 2007, it was included on the list of Denmark’s 25 most significant industrial monuments by the Ministry of Culture (Danish Agency for Culture 2007). When the site was decommissioned following the relocation of the production of the *Aalborg Taffel Akvavit* in 2015, the Danish Agency for Culture imposed preservation orders on its key structures. The preserved factory buildings were therefore ‘listed’, meaning protected under national heritage legislation. This designation involved a highly specific and complex process coordinated with the state, and it entailed significant restrictions on how the buildings can be used, altered, or redeveloped. A consortium of developers acquired the site with the ambition of transforming it into a cultural and artistic hub. The masterplan, which was developed by Bjarke Ingels Group (BIG), Elgaard Architecture, and Henning Larsen Architects, guided the creation of Local Plan 1-3-113 (Aalborg Kommune 2017), which reclassified the area for mixed-use development (81,000 m²). The transformation of *Spritten* is anchored in a

broader culturally led urban regeneration strategy that is supported by municipal planning instruments, which stipulate land uses, planning restrictions linked to the preservation of industrial heritage, and spatial guidelines. Aalborg's Planstrategi 2011 established the 'growth axis' (*Vækstakse*) and highlighted Spritten among the cultural industrial landmarks concentrated along this axis (Aalborg Kommune 2011). A supplementary quality programme (*Sprøtfabrikgrunden Aalborg*) proposed non-binding guidelines on the use of materials and landscape design, while also addressing a commitment to social sustainability through design through a planned residential tower for senior citizens (*Taffeltårnet*).

The industrial 'listed' buildings have been reimagined for hybrid use, which includes a hotel, chocolate factory, distillery, theatre, galleries, and residences, thereby reactivating Aalborg's industrial legacy through multifunctional reuse. The local plan 1-3-113 subdivides the complex into four functional subzones (Box 4.1), each characterised by specific land uses, design prescriptions, and spatial objectives.

Box 4.1 Four Subzones of the Spritten Redevelopment ↱

The Spritten redevelopment is structured into four interrelated subzones, each with a distinct spatial logic yet aligned with a shared vision of inclusive and resilient urban transformation:

Heritage Core and Mixed-Use Waterfront: Preserves industrial buildings while integrating cultural, residential, and commercial functions. Public access to the waterfront is safeguarded through a continuous pedestrian promenade.

Ecological Living Edge: A residential zone with ground-floor cafés and a naturalised waterfront landscape featuring native and aromatic vegetation, permeable surfaces, and informal public amenities.

Transitional Opportunity Zone: A temporarily unprogrammed area held in reserve for future development, open to experimental or adaptive planning strategies.

Urban Threshold and Mobility Node: Defines a dense urban edge along Strandvejen with ten-storey housing, proximity to Westbyen station, and climate-resilient design elements such as green roofs, tall vegetation, and water-sensitive systems.

Together, these zones articulate a multi-scalar approach to regeneration, blending heritage, ecology, and public space into a cohesive urban framework.

(Source: Lokalplan 1-3-113, Aalborg Kommune 2017. Elaboration: Alessandra Badami)

Owing to their visibility from the nearby elevated railway bridge, the rooftops of buildings in the *Spritten* redevelopment were conceived as a ‘fifth façade’. Green roofs were implemented not only to enhance visual integration but also to offset building density and support climate resilience. These were complemented by the planting of tall trees and vegetated systems designed to facilitate urban water drainage and promote ecological balance. Rainwater Harvesting and Management (RWHM) systems were strategically embedded into public and recreational spaces to retain water, reduce surface runoff, and mitigate the risk of flooding.

Vehicular access to the *Spritten* area was provided via Strandvejen through ramps leading to underground parking, while internal circulation followed the ‘shared space’ principle of blurring the boundaries between pedestrian and vehicular movement to prioritise soft mobility and support high-quality public spaces (Lissandrello et al. 2017).

The overarching planning aim was to establish an inclusive, open, and permeable neighbourhood, where public spaces foster social interaction, everyday amenities, and urban liveability. Design provisions extend to both façades and adjacent public spaces: active façades are required along key public fronts, while open façades are encouraged in more intimate, residential settings near the waterfront (Box 4.2). Flexible façades support long-term adaptability of ground-floor uses without compromising architectural coherence. Additionally, *kantzoner* (Box 4.3) – transitional edge spaces – were carefully configured to enhance interaction, comfort, and spatial quality across the neighbourhood.

Public squares – *Fabrikspladsen*, *Tankpladsen*, *Kartoffelpladsen*, and *Kulpladsen* – have been equipped with benches, trees and lighting and are supposed to host artistic installations, including the *Cloud City Aalborg* sculpture by Tomás Saraceno. Comprising 68 suspended glass modules, this artistic installation is planned to surpass the height of Copenhagen’s Round Tower (*Rundetårn*), which is approximately 34.8 metres tall (about 114 feet). *The Cloud City* sculpture is supposed to function as a new Aalborg community-driven landmark.

In 2019, a competition led to the design of *Kunsthal Spritten*, a contemporary art centre, through collaboration between PRAKSIS Arkitekter, Kristine Jensens Tegnastue, VMB Architects, and Henry Jensen Consulting Engineers. A public engagement process accompanied the architectural competition, including presentations and feedback from local citizens. This participatory planning process reinforced democratic legitimacy and community ownership of the site’s future on the valorisation of the site’s historical stratification, maintaining the recognisability of the original industrial fabric and reinterpreting it through renewed artistic creativity. The vision consisted of the establishment of multi-level exhibition spaces, including a studio, a café, and direct upper-level access to the monumental artwork *Cloud City Aalborg*.

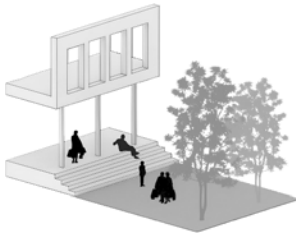
The process of the *Spritten* planning was complemented by a plan that integrated the previous local plan, thereby addressing the area’s vulnerability to climate change, particularly the risk of flooding due to the Limfjord water-level rise. The plan included raising the ground level to 1.9 metres in the most exposed areas. This measure constituted a preventive strategy against storm surges

Box 4.2 Façade Systems and Public Space Interaction ↗

Local Plan 1-3-113 introduced a façade system in the *Spritten* area to mediate between buildings and public space. Inspired by the central water-front plan, it featured three types: active, open, and flexible façades – each offering a distinct mode of spatial interaction. Flexible façades can be combined with the other types to support adaptable ground-floor uses.



Active façades were reserved for buildings hosting public functions—such as cafés, shops, and services—and featured large glazed surfaces to ensure visual transparency. This design strategy fostered interaction between interior uses and the surrounding urban space, enhancing spatial continuity and animating the public realm through increased social permeability.



Open façades were designed for areas without predefined ground-floor functions, allowing for spontaneous or temporary activities. Featuring one or more open sides, this typology enabled informal uses such as markets, performances, games, or festivals, and served as a connective space for movement and social interaction across the block.



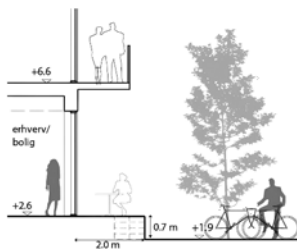
Flexible façades were designed to accommodate changing functions over time, ranging from residential and office to retail or storage. Openings could vary in size, number, and placement to align with evolving uses: small windows for housing, medium for offices, and large or glazed fronts for commercial activity. This typology enabled structural adaptability, anticipating long-term functional and architectural transformations.

(Source: Lokalplan 1-3-113, Aalborg Kommune 2017. Elaboration: Alessandra Badami)

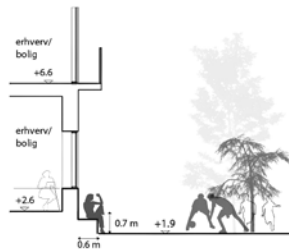
without compromising the permeability and continuity of public space along the fjord. The guiding concept for this climate adaptation measure was based on the interaction between green and blue landscapes and the morphological reinterpretation of the breakwater, whereby the green areas assumed curved and teardrop shapes that integrate with the water system, equipped with micro-landscape elements that could regulate stormwater runoff, increase soil absorption capacity and provide multifunctional public spaces.

Box 4.3 Kantzoner (“edge zones”): Transitional Zones Between Buildings and Public Space ↴

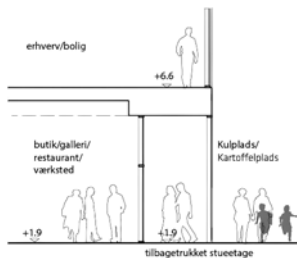
Kantzoner function as transitional zones between public spaces and adjacent façades, varying in form depending on spatial conditions and intended use. They are typically classified as wide (1–3 metres), narrow (around 1 metre), or recessed – such as porticoes set back within the building line. These edge zones enhance flexibility, spatial permeability, and the quality of interaction between buildings and the urban realm.



The **wide kantzone**, with a depth ranging from 1 to 3 metres, functions as an exterior extension of the building, supporting both permanent and temporary uses—such as café seating, benches, play areas, bicycle racks, or green installations. Designed for high symbolic and functional usability, this edge zone enables the building to actively engage and extend into the public realm.



The **narrow kantzone**, approximately one metre deep, serves a more modest yet meaningful role. It defines the building edge and supports light furnishings – such as benches, planters, or stepped seating – that enhance the interface between building and street, fostering informal interaction and spatial definition.



The **recessed kantzone** is formed by setting the building line back from the street, creating a portico or internal gallery within the architectural footprint. This configuration offers protection from weather while enhancing the continuity of public space, supporting pedestrian permeability and providing sheltered zones for circulation and informal use.

(Source: Lokalplan 1-3-113, Aalborg Kommune 2017. Elaboration: Alessandra Badami)

A cross-section of the masterplan illustrated a refined articulation between the bases of the existing buildings and the elevated urban ground, which was supposed to allow the terrain to be precisely adapted. The teardrop-shaped areas translated into paved surfaces, green spaces, or asphalt insets, thereby

configuring a hybrid urban environment where resilience, aesthetics, and accessibility coexist.

Along the coastline, the landscape plan included the creation of a ‘climatic plinth’ and a surface of vegetation that is supposed to function as a natural barrier against storm surges. Next to these passive defence measures, the harbour promenade in the plan unfolded in a sequence of recreational spaces, morphological gradients, wooden seating, and windbreaks, which promote daily engagement with the Limfjord landscape.

Moreover, the plan articulated a system of open spaces, pedestrian pathways, and new relationships between the water, the ground, and the city. The *Kulpladsen* towards the fjord was supposed to function as both a connective and protective device: constructed on piles to ensure the area’s usability even in extreme rising water levels, and it was thought to reinforce the orientation of the former factory towards the fjord without interrupting the visual and functional relationship between the district and the coastal landscape.

However, the vision for *Spritten* and its timely innovative solutions in the planning process faced persistent governance conflicts. Legal and governance challenges emerged related to cost-sharing for climate-adaptive infrastructures, the interpretation of development agreements, and broader questions of procedural clarity. These issues led to a review by the National Supervisory Authority (*Ankestyrelsen*), which in December 2023 concluded that Aalborg Municipality had not fully adhered to the Danish Planning Act.

Rather than focusing solely on administrative irregularities, the case has drawn attention to broader tensions within contemporary urban regeneration processes, including the governance of complex public-private collaborations and the evolving role of development agreements. Danish media between 2021 and 2025 (e.g., TV2 Nord, *Nordjyske*, and *MigogAalborg*) highlighted legal uncertainty and divergent stakeholder expectations. A formal settlement between Aalborg Municipality and *Spritten A/S* was reached in late 2023, allowing the regeneration process to resume. The agreement marked a reactivation of long-standing ambitions to establish *Spritten* as a cultural district with national and international relevance.

The case of *Spritten* illustrates some of the structural dilemmas of heritage-led urban sustainability transformation. The interplay between entrepreneurial governance, symbolic capital, and legal proceduralism raises questions central to *Phronetic Planning theory*. The governance trajectory reflects how different interests and planning rationalities are negotiated through instruments that are not only technical but also politically and institutionally contested. From an *Urban Sustainability Governance* perspective, the redevelopment of *Spritten* demonstrates how the transformation of industrial landscapes is embedded in multi-scalar processes of cultural production, regulatory adaptation, and socio-environmental restructuring.

From a *Just Sustainability* perspective, the project reveals a tension between the inclusive imaginaries of cultural infrastructure and the exclusionary realities of speculative urbanism, which often risk legal opacity and socio-spatial inequality. The divergence between formal planning visions and lived political



Figure 4.11 Aerial Rendering of the Future Spritten District in Aalborg. ↗

(Source: Aalborg Kommune 2017).

processes illustrates that urban sustainability encompasses several interpretations subject to friction, renegotiation, and partial realisations. As such, *Spritten* encapsulates not only the most recent transformative ambitions of Aalborg's waterfront development but also its structural vulnerability: the fragility of negotiated agreements, the limits of participatory legitimacy, and the risks of instrumentalising culture.

On 5th December 2025, Spar Nordfonden announced the official start of construction for *Kunsthall Spritten* and *Cloud City*, marking a historical milestone. As a flagship for contemporary art and cultural production, *Spritten* (Figure 4.11) now represents a complex urban process where built heritage, cultural production, environmental resilience, and procedural justice are intertwined. Its trajectory highlights both the potential and fragility of culture-driven urban regeneration processes. It testifies to a third dimension of Aalborg's urban sustainability in the making: beyond ecological adaptation and public space, the symbolic and material reconfiguration of industrial pasts into community-driven futures.

Towards Cultural Foundations for Urban Sustainability in Phase III

Phase III underscores the shift towards governance-driven sustainability, whereby planning instruments, institutional frameworks, and participatory processes are

mobilised to integrate sustainability into the urban fabric. Projects such as *Musikkens Hus*, *Create*, *Østre Havn*, *Vestre Fjordpark*, and *Spritten* demonstrate that sustainability is increasingly shaped through spatial design, cultural production, and negotiated forms of implementation. Yet this phase does not represent a conclusion; rather, it reveals the ongoing and ‘unfinished’ nature of Aalborg’s waterfront transformation. Sustainability emerges as a dynamic, relational, and often contested condition, which is continuously redefined through institutional learning, power struggles, and evolving urban imaginaries.

Temporalities of Implementation: Staging Urban Sustainability at Aalborg’s Waterfront

As seen in the previous sections, urban transformation in Aalborg’s waterfront has progressed with a series of urban identity values. This analysis advanced through three overlapping phases (Table 4.1), each shaped by distinct planning rationalities that are here synthesised by interpretive logics of the *Urban Sustainability Compass* (Chapter 1).

Phase I (1990s–early 2000s) was driven by a sense of *urgency* in the face of industrial decline and environmental degradation. In the absence of overarching strategic plans, planners turned to experimental and adaptive instruments, such as design competitions, to reclaim dismissed industrial sites and brownfields thereby re-establishing to access the fjord.

These key projects and processes laid the groundwork for subsequent institutional consolidation, thereby exemplifying *phronetic judgement under uncertainty*.

Phase II (early 2000s–2010s) introduced the logics of *legitimation* and *implementation*, embedding urban sustainability in a broader narrative of cultural identity and symbolic renewal. Projects such as *Jomfru Ane Parken*, *Tolbod Plads* and *Slotspladsen*, the *Utzon Center*, and *Nordkraft* became vehicles for reimagining Aalborg as a vibrant and inclusive post-industrial city. Planning practice became more formalised, with design and heritage increasingly instrumentalised to produce public identity, assume meanings and enhance urban branding.

Phase III (2010s–present) reflects the growing complexity of governance-driven urban sustainability. Projects such as *Musikkens Hus*, *Create*, *Østre Havn*, *Vestre Fjordpark*, and *Spritten* illustrate that planning has become more participatory, negotiated, and fragmented. While sustainability is now framed and integrated within long-term institutional strategies, it remains an unfinished and contested project which is shaped by competing interests, uneven capacities, and value conflicts where disagreement and negotiation are constitutive of democratic urban transformation (Hillier 2002; Mouffe 2005; Pløger 2023).

These three phases demonstrate that Aalborg’s waterfront regeneration is not a coherent march towards urban sustainability but a layered and path-dependent process shaped by evolving rationalities, institutional learning, and spatial imaginaries.

Table 4.1 Timeframe of Major Projects and Processes in Aalborg's Urban Transformation (Elaboration: Enza Lissandrello, based on Planning Documents and Interviews) ↱

<i>Phase</i>	<i>Timeframe</i>	<i>Dominant Logics (Urban Sustainability Compass)</i>	<i>Planning Characteristics</i>	<i>Key Projects and Processes</i>	<i>Spatial & Institutional Legacies / Path Dependencies</i>
Phase I	1990s–early 2000s	Urgency	Response to industrial decline and environmental degradation Experimental and adaptive instruments under uncertainty Use of design competitions and temporary planning tools Early phronetic judgement shaping waterfront access	Reclamation of dismissed industrial sites and brownfields Initial fjord access projects Design competitions setting spatial and narrative groundwork	Established foundational access to the fjord Introduced experimental governance practices Created symbolic openings for future cultural and community-orientated projects
Phase II	early 2000s–2010s	Legitimation & Implementation	Embedding sustainability into cultural identity and symbolic renewal Increasing formalisation of planning Use of heritage and design for urban branding Public spaces as vehicles for inclusivity	Jomfru Ane Parken Toldbod Plads & Slotspladsen Utzon Center Nordkraft	Consolidated cultural identity as a driver for regeneration Strengthened institutional capacity and partnerships Framed sustainability as part of urban branding and inclusivity
Phase III	2010s–present	Implementation & Legitimation (with Governance Complexity)	Governance-driven sustainability with more participatory and negotiated planning Fragmented yet strategic long-term frameworks Ongoing contestation and value conflicts in democratic transformation	Musikkens Hus Create Østre Havn Vestre Fjordpark Spritzen	Embedded sustainability into long-term governance strategies Increased complexity of multi-actor negotiation Exposed tensions between participation, equity, and economic competitiveness

Aalborg's waterfront transformation is a path-dependent process, each phase building on, reacting to, and at times contradicting the trajectories of the previous. As theorised in planning literature (Healey 2007; Martin and Sunley 2006), *path-dependency* asserts that past decisions, spatial configurations, and institutional capacities constrain or enable future opportunities. The spatial and discursive foundations laid during *Phase I*, for instance, were instrumental in framing the community-driven and cultural ambitions of *Phase II*, just as the governance complexities encountered in *Phase III* cannot be fully understood without tracing their roots back to earlier modes of planning. Ultimately, this temporal framing demonstrates that urban sustainability is forged not only through policy and design but also through ethical judgement, political contestation, and the sedimented legacies of prior interventions, thus revealing what kind of city is being sustained, for whom, and how.

Applying the Compass to Aalborg's Waterfront: Interpreting Logics, Theories, and Narratives

The Urban Sustainability Compass (Chapter 1) (Figure 4.12) offers a conceptual framework which holds that urban sustainability is enacted not as a static endpoint but as a dynamic, iterative, and situated process. In the context of the transformation of Aalborg's waterfront, the compass is operationalised through the analysis of the following four interwoven logics: urgency, legitimisation, implementation, and experimentation. These logics serve as *heuristic coordinates* to trace how different projects – across three distinct phases – mobilised specific planning rationalities, responded to context-specific pressures, and produced new spatial, institutional, and cultural configurations. The compass reveals that each phase of redevelopment engaged these logics in overlapping and evolving ways: from the urgent ecological and symbolic recovery of *Phase I*, through the cultural legitimisation and institutional consolidation of *Phase II*, to the negotiated and contested governance arrangements in *Phase III*. Rather than viewing urban sustainability as a singular master narrative, the compass enables a more nuanced understanding of *its making*, highlighting the interplay of design innovation, political contestation, and institutional learning over time.

Conclusion: Sustainability as a Situated and Evolving Urban Practice

This chapter has traced the long-term transformation of Aalborg's waterfront as a paradigmatic case of *urban sustainability in the making*. Anchored in the compass, the analysis has demonstrated that the interwoven logics of urgency, legitimisation, implementation, and experimentation described in the *Urban Sustainability Compass* contribute to defining not only the form and function of the waterfront but also the political, institutional, and symbolic processes through which urban sustainability is articulated and contested.

The logic of urgency emerged most clearly in the early phases, when environmental degradation, spatial dereliction, and the collapse of industrial infrastructures catalysed immediate, pragmatic responses. These interventions were

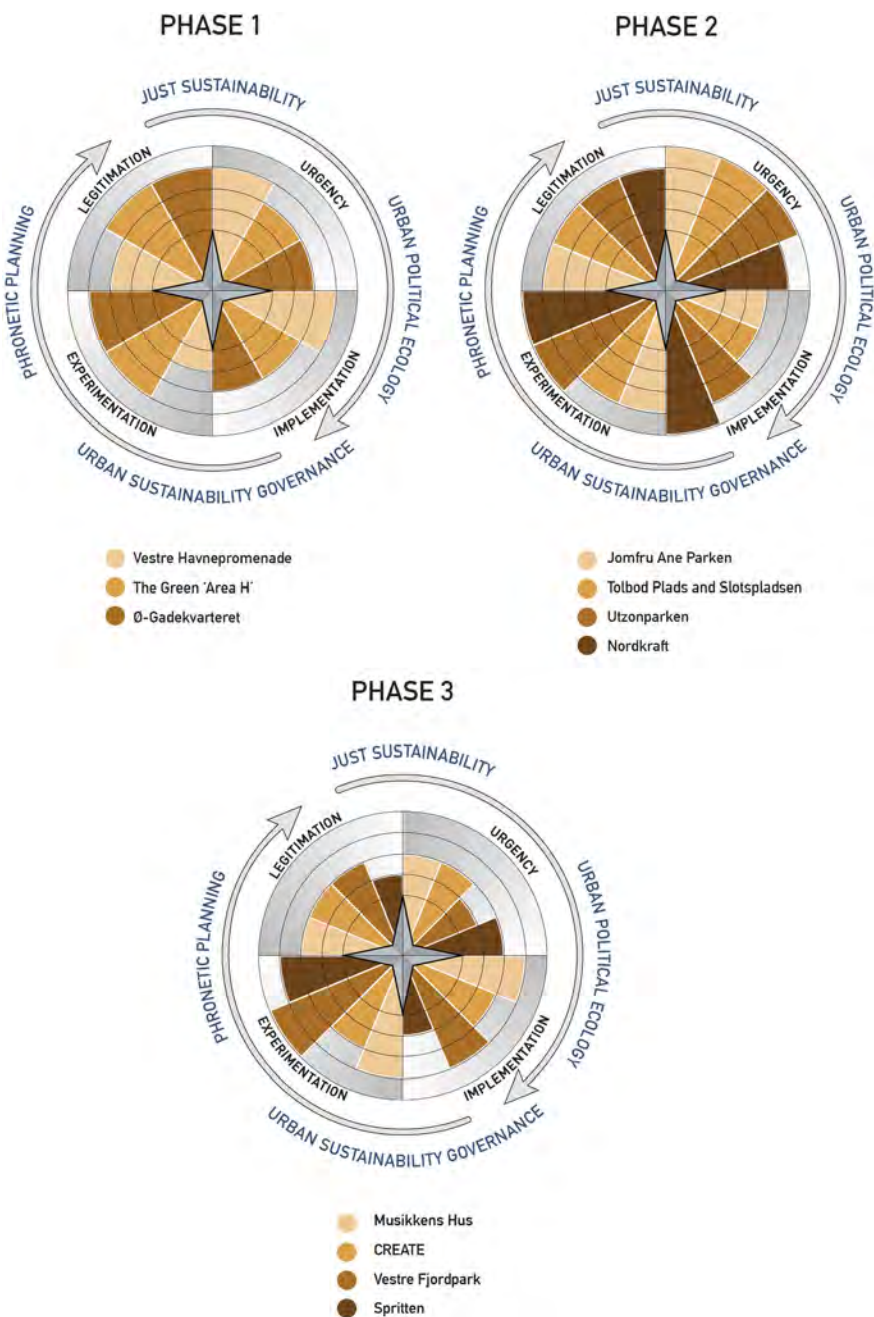


Figure 4.12 The Urban Sustainability Compass of Aalborg's Waterfront. (Concept and design: Enza Lissandro; visual elaboration: Alessandra Badami).

not comprehensive but strategic and were driven by an acute need to reclaim land, restore ecological conditions, and re-establish public access to the fjord. However, the logic of urgency has become an integrated and routine aspect in Aalborg planning practice; the learning has been to transform the city from within – through densification – rather than expanding outward, thereby conserving land otherwise allocated for urban sprawl. This approach also reflects a certain sense of *urgency*, as Aalborg cannot easily expand into river valleys and meadows – urban sustainability considerations also integrate considerations of places' topographical constraints.

As the transformation matured, the logic of *legitimation* gained prominence. Cultural infrastructures, public spaces, and heritage reuse – such as *Nordkraft* and the *Utzon Center* – were not only functional assets but also symbolic anchors. They helped reframe Aalborg's identity and constitute a new branding, aligning sustainability with public pride, aesthetic value, and cultural continuity. Here, urban sustainability became embedded in narratives of belonging, creativity, and inclusive urbanism. The logic of implementation consolidated these ambitions into more formalised spatial strategies. From the opening of the canal district in Vestre Havnepromenade to the climate-adaptive design of later projects, and across all phases, the logic of *experimentation* remained active, manifesting in temporary uses, collaborative governance models, and design-led testing. Even as projects became more permanent and complex, sustainability retained a negotiated quality. Projects like *Østre Havn* and *Vestre Fjordpark* illustrate that urban sustainability is not a fixed objective but a process of ongoing adjustment, situated judgement, and collective meaning-making.

These interwoven logics illuminate that Aalborg's waterfront transformation cannot be reduced to a single trajectory or master plan. Rather, it is best understood as a layered and iterative process, shaped by situated responses to socio-economic conditions, cultural aspirations, and political negotiation. The *Urban Sustainability Compass* thus proves valuable not only as an analytical tool but also as an analytical lens for understanding how cities like Aalborg actively perform, contest, and reconfigure sustainability through spaces, governance models, and narratives.

The Aalborg case highlights that urban sustainability is not simply implemented – it is made through time, in place, and through power dynamics. The processual, path-dependent, and agonistic character of Aalborg's waterfront offers broader insights for planning scholars and practitioners alike: sustainability must be governed but also imagined, narrated, and continually re-enacted through reflexive urban practices.

References

- Aalborg Kommune. 1989. *Idekonkurrence Aalborg Havnefront*. Aalborg.
- Aalborg Kommune. 1993a. *Bykatalog. Aalborg Og Nørresundby Tætbyområde*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 1993b. *Lokalplan 10-041: Erhvervsområde Ved Gasværksvej*. Aalborg: Teknisk Forvaltning.

- Aalborg Kommune. 1999. *Fjordkatalog*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2000. *Lokalplan 09-050: Bolig-Og-Erhvervsområde Ved Vestre Havnepromenade, Vestbyen*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2001. *Aalborg Havnefront – Til Debat. By- Og Landskabsudvalget*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2003. *Lokalplan 10-066: Erhvervs- Og Boligområde Ved Østre Havn, Ø-Gadekvarteret*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2004. *Lokalplan 10-073: Jomfru Ane Parken, Aalborg*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2006a. *Lokalplan 10-075: Nordkraft, Aalborg Midtby*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2006b. *Lokalplan 10-082: Utzonparken Og Slotspladsen, Aalborg Midtby*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2009. *Lokalplan 1-4-104: Boliger m.m. Ved Beddingen, Nyhavnsgade Og Frogade, Ø-Gadekvarteret*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2010. *Lokalplan 1-1-104: Musikkens Hus*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2011. *Planstrategi 2011: Norddanmarks vækstdynamo*. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2012a. *Kvalitetsprogram for Østre Havn*. Aalborg. https://apps.aalborgkommune.dk/images/teknisk/PLANBYG/andre_planer/Oestre_Havn_Kvalitetsprogram_Marts2012.pdf
- Aalborg Kommune. 2012b. *Lokalplan 1-4-106: Boliger Og Erhverv, Østre Havn, Ø-Gadekvarteret*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2013. *Byudvikling Ved Havnefronten: Evaluering Og Borgerinddragelse*. Aalborg.
- Aalborg Kommune. 2014a. *Lokalplan 1-4-109: Værftsarealet, Beddingen, Østre Havn, Ø-Gadekvarteret*. Aalborg: By- og Landskabsudvalget.
- Aalborg Kommune. 2014b. *Lokalplan 3-4-102: Vestre Fjordpark, Mølholm*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2017. *Lokaplan 1-3-113: Spritfabrikkens Omdannelse, Strandvejen Og Vestre Havnepromenade, Vestbyen*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2019. 'Mobilitet 2040.' <https://www.aalborg.dk/om-kommunen/politikker-strategier-og-planer/mobilitet-2040>
- Aalborg Kommune. 2020. *Lokalplan 1-4-114: Boliger, Østre Havnepromenade, Ø-Gadekvarteret*. Aalborg: By- og Landskabsforvaltningen.
- Agyeman, J., and B. Evans. 2004. "'Just Sustainability': The Emerging Discourse of Environmental Justice in Britain?" *The Geographical Journal* 170(2):155–64. doi: 10.1111/j.0016-7398.2004.00117.x
- Andersen, A. J. 2013. *Urbane Projekter: Mellem, Sted, Diskurs Og Planlægning*. Aalborg: Aalborg Universitet, vbn.aau.dk.
- Aunsborg, C., and M. T. Sørensen. 2008. 'Planning and Implementation of Urban Regeneration: The Adequacy of the Statutory Toolbox Available to Practice'. In *Integrating Generations: FIG Working Week 2008. International Federation of Surveyors*. Aalborg: Aalborg Universitet, vbn.aau.dk
- Baeten, G. 2012. Normalising Neoliberal Planning: The Case of Malmö, Sweden. In: Tasan-Kok, T., and Baeten, G. (eds) *Contradictions of Neoliberal Planning. GeoJournal Library*, vol. 102. Dordrecht: Springer, https://doi.org/10.1007/978-90-481-8924-3_2
- Badami, A. 2021. 'Health as an Institutional Commitment. The Conversion of Nordkraft from a Power Station to a Cultural and Health Centre'. pp. 896–905 in *World Heritage and Design for Health*, edited by C. Gambardella. Roma: Gangemi.
- Blackwell, R. 2000. 'Urban Design Considerations for the Versatile Shipyard Site in North Vancouver'. Doctoral dissertation, University of British Columbia.

- Bulkeley, H., V. Castán Broto, M. Hodson, and S. Marvin. 2011. *Cities and Low Carbon Transitions*. London: Routledge.
- Danish Agency for Culture. 2007. *Industrikulturens Danmarkskort*. Copenhagen.
- Danish Architecture Center. 2023. 'Nordkraft: Aalborg's Cultural Powerhouse'. <https://dac.dk/en/knowledgebase/architecture/nordkraft>
- Flyvbjerg, B. 2004. 'Phronetic Planning Research: Theoretical and Methodological Reflections'. *Planning Theory & Practice* 5(3):283–306. doi:10.1080/1464935042000250195
- Frampton, K. 2004. *Studies in Tectonic Culture: The Poetics of Construction in Nineteenth and Twentieth Century Architecture*. Cambridge, MA: MIT Press.
- Galland, D., and J. H. Carsten. 2012. 'The Roles of Planning in Waterfront Redevelopment: From Plan-Led and Market-Driven Styles to Hybrid Planning?' *Planning Practice and Research* 27(2):203–25. doi:10.1080/02697459.2012.661669
- Harder, H., O. B. Jensen, A. A. Thuesen, and H. K. Askholm. 2011. *Park/ Borgerundersøgelse – Jomfru Ane Parken, August 2011*. Aalborg University: Institut for Arkitektur og Medieteknologi.
- Healey, P. 2007. *Urban Complexity and Spatial Strategies: Towards a Relational Planning for Our Times*. London: Routledge.
- Hillier, J. 2002. *Shadows of Power: An Allegory of Prudence in Land-Use Planning*. London: Routledge.
- ICLEI. 1994. *The Aalborg Charter*. <https://iclei-europe.org/publications-tools/?c=search&uid=2K4g4nsA>
- ICLEI. 2004. *Aalborg Commitments*. <https://iclei-europe.org/publications-tools/?c=search&uid=AvYfqdhj>
- Janoušková, M. 2015. 'Determining Factors in the Conversion of Power Stations. The Case Study of Nordkraft (Aalborg)'. *Stavební Obzor - Civil Engineering Journal* 24(1). doi:10.14311/CEJ.2015.01.0007
- Jensen, B. 2020. 'Aalborg: The Image of a City Seen through Multiple Gazes on Instagram'. In *Connect to Collect Approaches to Collecting Social Digital Photography in Museums and Archives*, edited by E. Boogh, K. Hartig, B. Jensen, P. Uimonen, and A. Wallenius. Stockholm: Nordiska museets förlag.
- Jensen, O. B. 2007. 'Culture Stories: Understanding Cultural Urban Branding'. *Planning Theory* 6(3):211–36. doi:10.1177/1473095207082032
- Kiib, H. 2012. 'Harbourscape Aalborg – Design Based Methods in Waterfront Development'. In H. Smith & M. S. Garcia Ferrari (Eds.), *Waterfront Regeneration: Experiences in City-Building* (pp. 115–36). London: Routledge.
- LILA. 2016. *Jomfru Ane Parken by C.F. Møller Landscape*. Landezine International Landscape Award. <https://landezine-award.com/aalborg-waterfront/>
- Lissandrello, E., R. Hrelja, A. Tennøy, and T. Richardson. 2017. 'Three Performativities of Innovation in Public Transport Planning'. *International Planning Studies* 22(2):99–113. doi:10.1080/13563475.2016.1196579
- Marling, G., and H. Kiib. 2007. 'Harbourscape Aalborg – Design-Based Methods in Waterfront Development'. In H. Smith & M. S. Garcia Ferrari (Eds.), *Waterfront Regeneration: Experiences in City Building*. London: Routledge.
- Martin, R., and P. Sunley. 2006. 'Path Dependence and Regional Economic Evolution'. *Journal of Economic Geography* 6(4):395–437. doi:10.1093/jeg/1bl012
- Møller, C. F. 2015. *Jomfru Ane Parken. Project Overview*. <https://www.cfmoller.com/pl/Aalborg-Waterfront-i2005.html>
- Møller, C. F. 2016. 'Aalborg Waterfront Wins 2016 City.People.Light Award'. <https://www.cfmoller.com/g/Aalborg-Waterfront-wins-2016-City-People-Light-award-i16646.html>
- Mouffe, C. 2005. *On the Political*. London: Routledge.

- Pløger, J. 2023. Planning—The Force of Working Unfinished. In Lissandrello, E., Sørensen, J., Olesen, K., and Steffansen, R. N. (Eds.), *The 'New Normal' in Planning, Governance and Participation: Transforming Urban Governance in a Post-pandemic World* (pp. 27–39). Cham: Springer International Publishing.
- Ponzini, D., & Akhavan, M. 2020. Star Architecture Spreads in Europe: Culture-Led Waterfront Projects Between 1990 and 2015. In: Alaily-Mattar, N., Ponzini, D., and Thierstein, A. (eds) *About Star Architecture*. Springer, Cham.
- Røe, P. G., Kjærås, K. E. A., & Haarstad, H. 2022. The spatialities of the Nordic compact city. In *Socio-Spatial Theory in Nordic Geography: Intellectual Histories and Critical Interventions* (pp. 191–205). Cham: Springer International Publishing.
- Smith, R., and A. Wiek. 2012. 'Achievements and Opportunities in Initiating Governance for Urban Sustainability'. *Environment and Planning C: Government and Policy* 30(3):429–47. doi:10.1068/c10158
- Swyngedouw, E., and N. Heynen. 2003. 'Urban Political Ecology, Justice and the Politics of Scale'. *Antipode* 35(5):898–918. doi:10.1111/j.1467-8330.2003.00364.x
- Thomsen, T. 2020. *Havnefrontens Skjulte Lag: Historier Fra Ø-Gadekvarteret*. Aalborg: Nordjyske Arkiver.

5 Nørresundby Waterfronts

A Multifunctional and Ecologically Integrated Urban Environment

Alessandra Badami

Introduction: From Industrial Fragment to Experimental Urban Interface

The chapter examines the profound transformation of the Nørresundby waterfront, which is an urban area located on the northern shore of the Limfjord that was administratively integrated into the city of Aalborg following the 1970 municipal reform. From their origins, the two cities – while marked by distinct historical and morphological identities – have shared the evolving trajectories of a port settlement, shaped by parallel economic cycles, including a phase of industrial expansion between the mid-nineteenth and mid-twentieth centuries, followed by a significant decline of the productive model (Chapter 2).

The process of industrial decline and the challenges of urban regeneration have constituted a common ground for reflection and intervention, culminating in a shared vision formalised in the *Fjordkatalog* at the end of the twentieth century (Aalborg Kommune 1999). In this strategic document, the waterfronts of Aalborg and Nørresundby were redefined as priority and complementary areas for future urban development and assumed a central role in territorial reconfiguration processes (Chapter 3).

By the turn of the century, the landscape on both sides of the fjord was dominated by the imposing presence of disused industrial facilities, which created a physical and symbolic divide between city and water. Faced with the multifaceted challenges of regenerating these areas – not only from an urban and architectural perspective, but also in social, cultural, economic, environmental, and identity terms – the municipal administration promoted a participatory approach. Through active public engagement and collaboration with a broad range of stakeholders, including entrepreneurs and landowners, a process was initiated to shape a new, shared image of the urban waterfront.

In line with the experience of Aalborg (Chapter 4), since the final decade of the twentieth century, the waterfront of Nørresundby has likewise undergone a process of urban transformation, involving a succession of interventions – some of which are still ongoing – that have profoundly redefined its identity. The coastal strip has been the object of a radical reconfiguration, with the primary objective of transforming the former industrial landscape into a new

urban fabric inspired by the area's environmental and historical values. This has given rise to a predominantly green, mixed-use space that has restored the relationship between city and waterfront.

Rather than presenting a linear redevelopment narrative, the chapter adopts a situated and reflexive lens and traces how sustainability transition unfolds through the overlapping logics of *urgency*, *legitimation*, *implementation*, and *experimentation*. Drawing on *Urban Political Ecology*, *Just Sustainability*, *Phronetic Planning*, and *Urban Sustainability Governance*, the analysis brings the interplay between material infrastructures, governance practices, and symbolic constructions to the fore.

Building on the conceptual foundations established in Chapter 1, the chapter operationalises the idea of urban sustainability in the making by applying it to Nørresundby's specific context. Sustainability here is viewed not as a fixed outcome but as an evolving process of adaptation, friction, and experimentation. The analysis of the various urban regeneration projects, carried out through the conceptual framework of the *Sustainability in the Making Compass*, guides reflection around the following question: *how can the transformation of Nørresundby's waterfront inform an understanding of urban sustainability in the making through the lens of implementation, experimentation, legitimation, and urgency?*

Through detailed case analyses, the chapter examines how ecological remediation, cultural memory, climate resilience, and spatial justice are translated into planning instruments and built environments. The case material – ranging from *Lindholm Strandpark* to *Stigsborg* – demonstrates that planning serves as a mediating practice that navigates competing demands, uncertain futures, and evolving governance landscapes.

Nørresundby emerges as more than a site of post-industrial redevelopment; it is a testbed for experimental urban governance, where public and private actors negotiate shared futures under socio-environmental uncertainty.

Reflexivity is highlighted as both an operational method and a cultural orientation in sustainability planning. Drawing on Donald Schon's (1983) notion of the 'reflective practitioner' and Willson's (2020b) conception of planners as agents of ethical and strategic learning, the chapter shows that planners embraced complexity through iterative experimentation with zoning, public engagement, spatial typologies, and climate-responsive infrastructure. This approach echoes planning scholarship that positions reflexive practice as key to navigating uncertainty, pluralism, and long-term transformation (Lissandrello and Grin 2011).

Structure of the Chapter

The chapter introduces Nørresundby's waterfront as a privileged vantage point from which to explore broader questions of urban metabolism, governance hybridity, and the politics of sustainability. The chapter is organised into five main sections. Following this introduction, Section 2 outlines the theoretical

and methodological framework, elaborating on how the four theories from Chapter 1 shape the analysis. Section 3 presents empirical narratives of key redevelopment projects – Lindholm Strandpark, DAC, the Danish Crown site, Nordhavnen, and Stigsborg. Section 4 elaborates a comparative discussion of how the planning logics manifest across these projects and offers planners insights into embedding flexibility, co-creation, and ethical deliberation in urban redevelopment processes, the value of experimentation in testing futures, and the importance of aligning material change with social legitimacy. Section 5 concludes by synthesising the insights emerging from the case studies and reflecting on the implications for sustainability as a situated, iterative, and experimental planning practice. In this light, the waterfront becomes both a case and a conceptual device for rethinking sustainability transformation through the sustainability compass.

Theoretical and Methodological Framework

The analytical lens of this chapter is grounded in the four theoretical pillars laid out in Chapter 1. Each perspective contributes distinct insights into how sustainability is mobilised in urban transformation processes. *Urban Political Ecology* allows us to investigate the socio-natural relations embedded in infra-structural change and landscape redevelopment. *Just Sustainability* brings distributive and procedural justice to the fore, highlighting whose voices and interests are legitimised in redevelopment. *Urban Sustainability Governance* focuses on the coordination mechanisms, policy instruments, and monitoring practices that frame urban transformation. Finally, *Phronetic Planning* emphasises value-driven judgement, practical reasoning, and context-sensitive learning through planning practice.

Methodologically, the chapter adopts a qualitative, interpretive approach, guided by the *Sustainability in the Making Compass*. This structures the analysis through the following four overlapping logics: *urgency*, *legitimation*, *implementation*, and *experimentation*. Each case is examined through this lens to trace how planning practices have responded to socio-environmental pressures, secured legitimacy, operationalised visions, and enabled innovation through learning-by-doing.

In addition to theoretical grounding, the empirical analysis draws heavily on a systematic document analysis of Aalborg Municipality's planning archives, including local plans, zoning amendments, urban design manuals, and climate adaptation strategies. These documents are not treated merely as regulatory texts but as performative instruments that mediate and materialise planning logics. They are read as both discursive artefacts and operational devices that shape narratives of legitimacy, embedding technical and ethical rationales and structuring experimentation in the urban fabric.

This framework highlights that urban sustainability in Nørresundby is shaped by iterative experimentation, adaptive problem-solving, and co-productive engagement among diverse stakeholders.

Nørresundby's Waterfront: From Industrial Enclave to Urban Interface

As previously noted, by the late 1980s, the Nørresundby waterfront was still dominated by an industrial landscape that effectively severed the city from the Limfjord (Badami 2022). Except for the marginal and ecologically compromised *Lindholm Strand* marshland and a small, deteriorating residential cluster near the western vehicular bridge, the shoreline was lined with a nearly continuous stretch of manufacturing facilities. This configuration reinforced both physical and perceptual barriers between the city and the water and cemented the area's identity as a production-orientated zone largely disconnected from urban life (Galland and Hansen 2012).

At the heart of this industrial corridor stood the *Danish Crown* cooperative slaughterhouse, which had been in operation since 1891 and remained active until its closure in 2004. At the eastern and western ends of the zone were two major industrial complexes, both established in 1913: the *Dansk Andels Cementfabrik* (DAC) cement works, decommissioned in 1991, whose silo rose in isolation on the waterfront skyline as an iconic landmark; and the *Kemira* chemical plant, which specialised in the production of sulphuric acid and superphosphate, which ceased operations in 1998. Complementing this industrial system were additional production facilities, which further entrenched the area's infrastructural isolation (Holm 1999). This included the *Hedegaard Agro* plant for the manufacture of animal feed and seeds, which is still in operation today.

The entire area was served by a dedicated railway line running parallel to the Limfjord, thereby reinforcing the separation between the coastline and the inland residential neighbourhoods and accentuating the functional and perceptual divide between the city and the sea (Galland and Hansen 2012).

Interpreted through the lens of *Urban Political Ecology*, this segment of Nørresundby can be seen as a prototypical 'exclusion zone', configured through the metabolic and spatial logics of industrial capitalism. It was a space engineered for production rather than habitation or ecological reciprocity, which resulted in a landscape marked by environmental degradation, infrastructural severance, and social marginalisation.

A decisive turning point occurred in 1989, when the municipality launched a competition for the redevelopment of the industrial areas, which officially initiated a new planning programme. This transition coincided with Aalborg's broader urban turn towards sustainability, innovation, and participatory governance. The first initiatives took shape within the domain of environmental remediation and ecological restoration. In Nørresundby, the initial intervention involved the spatial reorganisation of *Lindholm Strandpark* and the development of adjacent green infrastructure. These actions were based on a planning logic rooted in climate adaptation and the enhancement of urban liveability.

In line with this vision, subsequent interventions involving the dismantling and remediation of obsolete industrial structures – including *DAC*, *Danish Crown*, *Nordhavnen*, and *Stigsborg* – implemented the guiding principles of sustainable urban development. These were orientated towards the reuse of

brownfield sites to contain urban sprawl, the restoration of ecological corridors within the built fabric, and the enhancement of public space as a key component of urban quality. Central to this process was the reconnection with the Limfjord, which was regarded as the primary natural and landscape infrastructure of the entire urban context.

A significant milestone in the regeneration process of the Nørresundby waterfront was reached between 2001 and 2002 with the relocation of the municipal departments for *Urban and Landscape Administration* and *Climate and Environment* to newly constructed facilities at *Stigsborg Brygge*. This move was more than logistical: it represented a spatial claim and a symbolic commitment which was consistent with a logic of legitimation that positioned the waterfront as a strategic urban frontier (Andersen 2013; Galland and Hansen 2012).

Considering the processes undertaken for the regeneration of disused industrial areas, the Nørresundby waterfront is not simply a requalified space but a dynamic governance arena, an urban interface where ecological futures are imagined, contested, and embedded in everyday planning practice.

Lindholm Strandpark: Environmental Remediation and the Social Reclamation

The earliest phase of Nørresundby's regeneration strategy took shape along the stretch of coastline between the railway bridge and the former DAC. Degraded by decades of industrial waste and pollution, this residual shoreline had long ceased to be used for bathing, had lost its original ecological functions, and the public was effectively barred from access.

A critical turning point came with the implementation of wastewater treatment plants to the east and west of the city, which significantly improved the water quality of the fjord. These interventions enabled a fundamental reimagining of the area as a 'socio-ecological interface', which fostered the emergence of new sustainability narratives focused on public access, ecological stewardship, and recreational value.

In this context, the municipal administration identified the *Lindholm* coastal zone with its tidal flats, lagoon morphologies, and shallow waters as a strategic site for ecological and civic transformation. This vision culminated in the creation of *Lindholm Strandpark* (Figure 5.1), an eight-hectare coastal park designed to enable low-impact, community-orientated engagement with the fjord. As one of the earliest flagship projects of Aalborg's new planning ethos, the park signalled a shift from industrial extraction to regenerative urbanism.

Formalised under Local Plan 12-029 in 1989 (Aalborg Kommune 1989), the project embodied a logic of legitimation grounded in ecological restoration and democratic accessibility. Rather than impose heavy interventions, the design preserved the site's natural geomorphology and reintroduced native flora. Circulatory pathways followed soft, organic lines, and construction materials – stone, pebbles, untreated wood – blended seamlessly into the landscape. This approach established a material language that reinforced both ecological values and aesthetic integration.



Figure 5.1 Lindholm Strandpark. In the Background, the Dansk Andels Cementfabrik Silo Converted into Apartments with the Addition of a Twin Silo. ↻

(Photo: Alessandra Badami).

More than a landscape enhancement, *Lindholm Strandpark* functioned as a site of governance experimentation, where new institutional alignments, stakeholder relationships, and sustainability discourses were tested and realised. The integration of multifunctional facilities – clubhouses, scout shelters, fishermen’s huts, play zones, and water access – embodied an inclusive vision of shared urban nature. These spaces not only encouraged diverse uses but also bolstered social legitimacy and civic pride.

The project’s enduring success was reinforced by its connectivity. The construction of the *Kulturbro Aalborg* pedestrian bridge in 2017 physically linked Nørresundby to the centre of Aalborg, thereby further consolidating the waterfront as a shared ecological and cultural infrastructure. This gesture also embedded the park within a wider symbolic geography of cohesion and transition.

From the perspective of *Urban Political Ecology*, *Lindholm Strandpark* illustrates that post-industrial landscapes can be reconfigured through new socio-natures, with landscape recovery aligning with public claims to space and ecological citizenship. Simultaneously, it exemplifies *Urban Sustainability Governance* in action and the material anchoring of sustainability principles through planning tools, public participation, and cross-sectoral collaboration.

Lindholm Strandpark is not only an environmental success but also a prototype for post-industrial sustainability. It operationalises the interpretive logics of urgency, legitimation, and implementation within a coherent, place-based transformation strategy, thereby positioning the park as a cornerstone of Aalborg's broader urban sustainability trajectory. This project also demonstrates a clear logic of experimentation, as the planning and design approaches tested new forms of socio-ecological integration and community engagement that were novel at the time.

Dansk Andels Cementfabrik (DAC): Negotiating Between Public Interest and Market Rationalities

The environmental remediation of Nørresundby's western waterfront and the establishment of *Lindholm Strandpark* marked a pivotal moment in Aalborg's transition from industrial decline to a sustainability-orientated urban model. The subsequent transformation of *Lindholm Brygge*—once the site of the DAC—extended this shift and exposed tensions between industrial heritage, speculative investment, and civic value. DAC thus serves as a lens through which to examine how cities negotiate urban sustainability in the making at the intersection of ecological degradation, economic ambition, and planning innovation.

Founded in 1913, DAC was among the five major cement factories that defined Aalborg's industrial identity in the twentieth century. Its production shaped the urban economy and spatial layout, symbolised by the prominent chimneys and reinforced by port and rail infrastructure (Bender and Pedersen 2006; Holm 1999). However, this industrial growth (Chapter 2) was accompanied by social inequality with precarious working conditions and minimal welfare provision for the labour force.

Triggered by the global energy crisis, deindustrialisation accelerated in the 1970s. One by one, all of Aalborg's cement plants closed their doors, except for *Aalborg Portland*, which remains the city's only fully operational cement plant, thanks to its investments in innovation and sustainability. DAC, which closed in 1978, left a problematic void, both symbolic and ecological, on the Nørresundby waterfront. However, its proximity to the emerging *Lindholm Strandpark* underscored its redevelopment potential and the challenge of reintegrating abandoned land into a renewed urban ecosystem.

Following the cessation of production, the site was identified in the *Fjordkatalog* as a priority area for urban regeneration, earmarked for mixed-use development. Its strategic location—overlooking the Limfjord, adjacent to the *Strandpark*, well connected to the airport, and enriched by architecturally valuable structures—made it highly attractive for new residential and multifunctional urbanisation.

In the 1980s, the owner of the site intended to transform the former industrial area into a luxury residential neighbourhood. To this end, he proposed a project for the construction of a high-density district that included the complete demolition of existing industrial structures (Galland and Hansen 2012). The private initiative turned out to be at odds with the urban planning policies

of the municipal administration, which instead aimed to preserve the industrial character of the area in recognition of its historical and cultural importance and promote the inclusion of public spaces and recreational functions connected to the surrounding urban fabric.

In the following years, lengthy negotiations took place, during which the landowners' association also took the initiative to launch a call for ideas aimed at exploring potential future uses for the area. However, uncertainties and the limited availability of reliable data regarding the contamination of the former industrial sites hindered both grassroots proposals and institutional collaboration. In response to these challenges, the municipality chose to intervene directly to address the unresolved environmental issues. The process required the development of several successive planning drafts, which were necessary both to mediate between the various stakeholders involved and to adequately address the problems related to soil pollution.

A turning point came in 2000 with the approval of Local Plan 12-053 (Aalborg Kommune 2000), which authorised a mixed-use urban programme. After the necessary environmental remediation, the urban plan envisaged integrating the construction of new facilities (housing, education and commercial uses interspersed with large green areas) with the adaptive reuse of historically significant buildings, such as the TAMU (*Træningsskolens Arbejdsmarkedsuddannelser*, Training School's Labor Market Education Programs) building and the main factory building, which was called *Katedralen* (the cathedral) due to its monumental size and proportions inspired by ecclesiastical architecture. A critical component of the plan was the preservation of the shoreline as undeveloped space, thus maintaining its ecological role and public accessibility, while expanding the green corridor initiated at *Lindholm Strandpark*.

Through this compromise, it was possible to reconcile economic valorisation with the safeguarding of cultural and environmental heritage. The municipality played an active role in the process and contributed to infrastructural investments, alongside the private entrepreneur as an institutional partner in the site's redevelopment (Galland and Hansen 2012).

Lindholm Brygge District: Redevelopment of Industrial Heritage

The regulatory framework laid out in Local Plan 12-053 (Aalborg Kommune 2000) for *Lindholm Brygge* articulated a careful balance between conservation, transformation, and spatial integration. Central to the plan was the adaptive reuse of industrial structures associated with Aalborg's cement legacy, thereby reinscribing industrial memory within the emerging urban fabric. These buildings, identified for their architectural or historical significance, were to be retained and reprogrammed within a wider urban ecology to serve as morphological anchors and narrative devices that connected past production landscapes to future urban imaginaries. Simultaneously, the plan reinforced the site's symbolic and environmental function as the western threshold of the urbanised waterfront, thus mediating the transition between built form and natural landscape.

The spatial strategy supported a polyfunctional urban district of approximately 70,000 square metres, one-third of which was reserved for residential use. The areas closest to the fjord were reserved for housing, while the central zone, which was structured around the disused industrial structures, was intended for tertiary and collective functions, including artisanal, commercial, cultural, educational and public activities. The plan thus promoted not only a functional mix but also a layered urban imaginary of learning, making, and dwelling.

The design principles privileged human-scale liveability and spatial connectivity. All residences were guaranteed fjord views and green access. A marina for small craft, supplemented by clubhouses and nautical services, animated the water's edge, which tied leisure and landscape into a unified recreational system. Two typologies structured the housing: terraced one- to two-storey dwellings near *Lindholm Strandpark*, which were arranged around shared gardens to foster informal collectivity, and five-storey residential blocks west of *Lindholm Brygge Avenue*, positioned along pedestrian spines that reinforced micro-scale porosity and environmental orientation.

A mandatory landowners' association (see Box 5.1) has been institutionalised to assume shared responsibility for the maintenance of open spaces and infrastructure. This community-based governance mechanism reflects emergent

Box 5.1 The Grundejerforening ↩

The Grundejerforening (Landowners' Association) is a regulatory mechanism within Danish urban planning practice, established to ensure the coordinated maintenance and management of green spaces and shared facilities located between buildings. Responsibility for these tasks is assigned to an association in which the participation of all landowners within the designated area is compulsory. The scope of management encompasses paving, planting and the upkeep of vegetation, lighting, street furniture, and rainwater drainage systems.

This instrument facilitates integrated and coordinated land management practices. On the one hand, it prevents the subdivision of private gardens and their enclosure by fences—thereby avoiding a fragmented and visually incoherent landscape. On the other, it relieves the municipality of the burden of having to maintain these areas.

The regulatory framework generates outcomes of high landscape value, fostering urban environments defined by a continuous and harmonious green structure, uninterrupted by the heterogeneous treatment of individual plots. Additionally, it represents a cost-efficient strategy for municipalities and encourages shared civic responsibility in the care and governance of the urban realm.

(Source: Lokalplan 12-053 (2000), Lokalplan 1-2-103 (2010) and Lokalplan 1-2-112 (2016), Aalborg Kommune. Elaboration: Alessadra Badami)

models of decentralised stewardship aligned with just sustainability principles, whereby ecological care and collective benefit are structured through long-term civic engagement.

Spatially, the district's backbone axis – *Lindholm Brygge Avenue* – linked preserved industrial buildings in a northeast-southwest orientation, which culminated in a framed view of the Limfjord. At this terminus stood a 47-metre cement silo, a former industrial landmark now reimagined as an anchor for urban memory. While its geometry precluded full residential conversion, the municipality opted for an annexed twin tower connected by a shared stairwell/lift core, elevating the ensemble to 53 metres and allowing 16 residential storeys. The intervention preserved formal identity while integrating vertical density as an exception within a largely horizontal landscape.

This verticality became a symbol of spatial distinction, carefully inscribed into the plan: vegetation was prohibited around the silo to maintain its exposed silhouette, which reinforced the site's open, wind-swept character. Here, *Urban Political Ecology* helps reveal how landscape aesthetics, heritage iconography, and wind dynamics intersect in the production of symbolic space.

Katedralen and the Logics of Adaptive Reuse

Among the most architecturally and symbolically significant remnants of the DAC complex was the so-called *Katedralen*, a monumental industrial hall originally constructed in 1913 and reconstructed in 1923 after a fire, using cast-in-situ concrete based on designs by architects Posselt and Simonsen (Bender and Pedersen 2006). As a paradigmatic artefact of Aalborg's cement-based urban metabolism, *Katedralen* embodied the spatial and material logics of early twentieth-century industrial urbanism. Following the site's deindustrialisation in 1978, the building was classified as having medium conservation value (level 4 on a 1–9 scale), reflecting both its architectural integrity and its embeddedness in the socio-natural memory of place.

Despite its symbolic and volumetric potential, *Katedralen* remained unused for more than a decade, illustrating the difficulties of mobilising private investment for heritage-driven reuse in post-industrial contexts. It was only in 2010, through zoning amendment 1-2-103, that the municipality revised the original local plan (Lokalplan 12-053) and proposed that the building be converted into a hybrid assemblage of residential, hospitality, and commercial functions (Aalborg Kommune 2010). This adaptive reuse strategy aligned with Aalborg's broader post-industrial transition narrative, one that positioned the reterritorialisation of former industrial sites as critical nodes within a knowledge-intensive, ecologically orientated urban economy.

Within this planning recalibration, *Katedralen* was reimagined not as a static monument to industrial heritage but as a flexible socio-material infrastructure capable of anchoring new forms of urban value production. The site's proximity to the airport and permissive zoning for vertical development prompted the integration of *Katedralen* into a new high-density complex

consisting of two towers, one residential and the other for hospitality. The ensemble was designed to stage a carefully negotiated juxtaposition between preserved industrial form and speculative verticality, materially expressing the tensions between historical continuity and market-driven intensification. The southern tower, later named *Triplet Tower*, is composed of three interlocking cylindrical volumes, which evoked the site's former silo typologies. Resting on a shared plinth and articulated at varying heights, the volumes created rooftop gardens sheltered from prevailing winds (Figure 5.2).

To date, *Triplet Tower* remains the only realised element of the amended plan, yet its iconic silhouette and industrial referencing render it a highly visible artefact within the reconfigured urban landscape. As such, the project functions both as a spatial marker and as a governance device: a site where discourses of heritage, innovation, and ecological urbanism are materially sedimented through iterative negotiations between public actors and private capital. Through the lens of *Urban Political Ecology*, this partial transformation underscores the hybridity of socio-natures in post-industrial urbanism: the intertwining of memory, materiality, and speculative futures in the production of urban space.



Figure 5.2 Lindholm Brygge. Integration Project of the Katedralen Building in the Middle of Two New Residential and Hotel Complexes Planned by Lokalplan 1-2-103. 𐀀

(Source: Aalborg Kommune, 2010).

Following the approval of Local Plan 1-2-103 in 2010, several more years passed without the initiation of any concrete interventions for the restoration and adaptive reuse of *Katedralen*. The absence of both routine and extraordinary maintenance led to the building's progressive deterioration, which revealed structural vulnerabilities and accelerated its physical decline. Considering the continued lack of development proposals and the increasingly compromised condition of the structure, the municipal administration ultimately resolved to proceed with its demolition, as formalised in Local Plan 1-2-106.

In 2012, a new local plan – designated 1-2-107 – was subsequently approved (Aalborg Kommune 2012). Although this plan endorsed the demolition of *Katedralen*, it mandated the preservation of the building's principal volumetric characteristics and its alignment towards the fjord. The plan established the dimensional and morphological parameters of the new replacement buildings, which were intended both to replicate the volume of the *Katedralen* and to substitute the previously planned – but never realised – hotel tower. Unlike the earlier plan, this version introduced a maximum height restriction of 35 metres with the aim of improving solar exposure and ensuring a more harmonious morphological integration with the pre-existing landscape context.

From a compositional perspective, the plan required that the façades of the new buildings be aligned along *Lindholm Brygge Avenue* in continuity with the existing building front and that they adopt a contemporary architectural language, explicitly excluding stylistic imitations of an industrial character. Emphasis was placed on the quality of public space: at ground level, extensive pedestrian areas were to be developed, equipped with seating, terraces, courtyards, and outdoor spaces serving cafés and restaurants with the aim of fostering urban liveability and vibrancy.

The revised plan provided a total of 15,000 square metres of new development, including 10,000 square metres for approximately 200 housing units aimed at younger residents and a further 5,000 square metres for mixed residential functions and small urban enterprises operating within the environmental sector. This programming reflected broader efforts to position the site as a locus of socially inclusive and environmentally responsible regeneration, which was consistent with Aalborg's post-industrial strategic vision.

A particularly salient component of Local Plan 1-2-107 was its incorporation of climate adaptation measures, particularly with respect to anticipated sea-level rise and episodic flooding. Informed by statistical projections from the Danish Coastal Authority and aligned with the municipal climate adaptation strategy, the plan used a one-metre sea-level rise scenario as a baseline. Given the site's low elevation – averaging just two metres above current sea level – the plan mandated a minimum plinth height of 2.36 metres for all new buildings. Semi-basement spaces were required either to integrate flood protection systems or to employ construction techniques capable of withstanding periodic inundation. These stipulations exemplify the operationalisation of climate governance through the technical apparatus of spatial planning. In line with the logic of implementation theorised by *Urban Political Ecology*, the

plan translates socio-environmental risk into regulatory thresholds and design constraints. Rather than responding to a moment of urgency or seeking legitimacy through consensus, the intervention embeds climate resilience within the material and institutional architecture of urban redevelopment.

This anticipatory governance logic illustrates the evolving rationalities through which urban socio-natures are governed, shifting from reactive policies to proactive, calculable, and spatially encoded strategies. By doing so, the DAC site emerges as a laboratory for post-industrial experimentation, whereby the overlapping imperatives of memory, market, and mitigation are negotiated within an extended field of Urban Sustainability Governance.

Urban Transition and Landscape Integration in the Redevelopment of Lindholm Brygge

Over the years, the functional configuration of the *Lindholm Brygge* area has undergone further transformations, which reflect the ongoing evolution that has accompanied the transition of the former industrial district towards a fully polyfunctional urban environment. In particular, the relocation of the *Tech College* – an educational institution previously occupying the building complex in the north-western sector of the site – necessitated the revision of the land-use regulations defined under Local Plan 12-053. This earlier plan had only permitted tertiary and educational service uses.

In response to this change, in 2016, the Aalborg municipal authority adopted Local Plan 1-2-112 (Aalborg Kommune 2016), which redefined the site's land uses by introducing new development provisions with a predominantly residential character. The spatial and volumetric provisions of the plan were formulated according to criteria of landscape integration and morphological harmony with the natural topography of the site. Building heights were progressively scaled from west to east with the aim of mediating the transition between the high-density built environment along *Lindholm Brygge* and the open, flat landscape characterising the western part of the area.

The plan includes the construction of a total of 190 residential units, which are a mix of terraced houses (ranging from one to three storeys) and apartment buildings (ranging from two to five storeys). The residential blocks are arranged along axes-orientated northwest-southeast and are slightly offset from the shoreline of the fjord, thereby generating open spaces configured as green wedges extending towards the natural landscape. This compositional strategy responds not only to functional considerations of natural ventilation and solar access but also to formal and landscape design intentions.

In line with the environmental sustainability strategies pursued by the Municipality of Aalborg, the plan promotes a construction approach aimed at both the mitigation of and adaptation to climate change. Among the measures envisaged are *Rainwater Harvesting and Management* (RWHM) systems for stormwater control and drainage to be implemented through decentralised devices such as rain gardens, retention basins, and channels integrated into the

green infrastructure. Given the low elevation of the site and its associated vulnerability to flooding, a minimum elevation of 2.46 metres was established for the base levels of new buildings.

Particular attention was also paid to enhancing the environmental quality of the urban space. The plan mandates the incorporation of green roofs and façades and stipulates that at least 25 per cent of green areas be planted with native tree and shrub species with the aim of enhancing the environmental value of the development and increasing local resilience.

Negotiated Regeneration and the Limits of Heritage Conservation

The urban transformation of the *Lindholm Brygge* area constitutes a paradigmatic case of post-industrial regeneration, where aspirations for the conservation of cultural heritage have intersected – though not without conflict – with economic, climatic, and social dynamics. The case is an example of multiple logics converging in urban sustainability transformations. The logic of *urgency* was visible in the degraded environmental conditions and social expectations for change. *Legitimation* was achieved through participatory processes, heritage framing, and the alignment with broader sustainability discourses. *Implementation* occurred through a phased, iterative planning process involving co-financing schemes, regulatory innovation, and design negotiations.

In particular, the fate of *Katedralen* – a decommissioned industrial building recognised as a cultural asset – illustrates the practical challenges of implementing conservation strategies in the absence of private investment or a clear will for adaptive reuse. Despite the initial attribution of symbolic and testimonial value to the structure, the lack of project proposals from economic stakeholders led to its demolition, ultimately affirming the predominance of functional rationalisation over the material safeguarding of industrial memory.

Concurrently, the *Lindholm Brygge* experience unfolded through a complex governance system which integrated regulatory tools and financial instruments within a framework of mixed and collaborative planning characterised by complex negotiation phases due to the critical issues arising from previous soil pollution (Galland and Hansen 2012).

The outcome of this hybrid strategy was a planning process orientated towards mediating between public and private interests: on the one hand, the municipality acted as a guarantor of urban and environmental quality and promoted the goals of sustainability, climate adaptation, and social inclusion; on the other, it provided room for manoeuvre for investors, which facilitated a transformation that was aligned with the dynamics of the property market. This institutional practice, foreseen by the Planning Act and already tested in other contexts such as *Østre Havn*, *Eternitten* and *Spritten*, led to the preservation of some elements of identity – such as the industrial character and the relationship with the fjord – without, however, being able to physically safeguard the original built structures.

Lindholm Brygge represents a significant example of urban regeneration in which the balance between memory and transformation, and between conservation and development, was pursued not through unilateral imposition but by means of an ongoing process of negotiation between public and private actors. This model of 'leveraged planning' reveals both its strengths – in its capacity to adapt to contingent conditions – and its limitations, particularly in the difficulty of ensuring effective heritage protection in the absence of a shared economic valorisation strategy.

Danish Crown

Within the strategic framework outlined by the *Fjordkatalog* (Aalborg Kommune 1999), the central port area of Nørresundby was identified as one of the highest-priority zones for urban regeneration initiatives promoted by Aalborg Municipality. The planning area was characterised by a heterogeneous juxtaposition of functions: on the one hand, the presence of the *Danish Crown* pork slaughterhouse, operated by one of Denmark's leading agri-food companies; on the other, a partially degraded residential district (*Nørresundby Havnefront*) fronting the fjord, which was poorly integrated with the surrounding urban fabric and served by only a few economic activities scattered along the port areas, which were intersected by disused railway tracks running parallel to the coastline.

Pending the decommissioning of the *Danish Crown* plant, scheduled for 2004, the regeneration process was initiated with the redevelopment of the *Nørresundby Havnefront* residential area. This began in 2001 with the adoption of Local Plan 12-045 (Aalborg Kommune 2001), which was developed following extensive public engagement as part of the broader holistic urban renewal strategy for Nørresundby.

Nørresundby Havnefront: The Reclamation of Public Space along the Waterfront

Drafted in collaboration with the architectural firm Lene Tranberg and Boje Lundgaard, the redevelopment plan for *Nørresundby Havnefront* aimed to re-establish both morphological and functional continuity between the city and its waterfront. This was to be achieved through the removal of obsolete railway infrastructure and the demolition of boat sheds, reallocating the waterfront area for a pedestrian promenade and redeveloping the small marina (Figure 5.3).

The refurbishment of the urban front along *Vestergade* was supported by national urban regeneration funding. The creation of semi-private collective spaces, accessible to the public and designed to foster social interaction and improve residential liveability, was co-financed by the Danish State and the Municipality of Aalborg. Responsibility for maintenance, cleaning, and management was entrusted to a landowners' association.



Figure 5.3 Nørresundby Havnefront. ↺

(Photo: Alessandra Badami).

The plan envisaged the construction of new residential blocks orientated perpendicular to the fjord line to facilitate natural ventilation and ensure visual permeability towards the water. To promote mixed-use development and activate the social life of the area, the ground floors of the buildings were allocated for commercial, hospitality, artisanal, and professional activities.

Although the initial phases of the project faced several challenges due to the proximity of the *Danish Crown* industrial plant, these issues were resolved following the cessation of its operations.

Water Landscapes and Green Courtyards: The New Urban Quality of the Former Danish Crown Slaughterhouse

The establishment of the *Danish Crown* cooperative slaughterhouse in 1892 marked a formative moment in the industrial development of Nørresundby, catalysing its transformation into a productive hinterland of the Limfjord. As part of a strategy to attract new industrial activities, the Municipality of Nørresundby granted the site free of charge to the livestock farmers' cooperative. Strategically located adjacent to the railway corridor, the site benefited from a direct rail extension into the premises, a spatial arrangement that

reflected the infrastructural logics of early industrial urbanism and facilitated efficient integration into regional trade networks (Aalborg Kommune 2006).

Between 1953 and 1965, the slaughterhouse expanded significantly, doubling its capacity and employing more than 400 workers. Yet, following the cessation of operations in 2004, the site entered a phase of decline and obsolescence. Deemed unsuitable for adaptive reuse, the existing industrial structures were slated for demolition, and the 10-hectare area was acquired by A. Enggaard A/S, a major player in Danish real estate development.

The transformation process was launched in 2005 with a participatory planning initiative led by Aalborg Municipality. Structured around public consultations, expert workshops, and site visits, the initiative exemplified a co-planning model that prioritised procedural legitimacy and early civic engagement. The resulting masterplan (Figure 5.4), developed in collaboration with Schmidt Hammer Lassen Architects and formalised as Local Plan 12-072 (Aalborg Kommune 2006), emerged from a combination of municipal vision, private interests, and public input.

Designated as a strategic node within Aalborg's wider waterfront redevelopment agenda, the site – positioned between the city's two Limfjord bridges – was envisioned as a mixed-use urban district. Authorising 72,000 square metres of new development, the plan combined housing, retail, offices, hospitality, and personal services. A key ambition was to create a new high-quality urban environment rooted in landscape integration and spatial permeability. The masterplan extended the waterfront promenade from *Nørresundby Havnefront* and introduced generous public spaces to enhance liveability.



Figure 5.4 Urban Redevelopment Plan of The Former Industrial District of Danish Crown. ↻

(Source: Aalborg Kommune 2006).

Environmental integration forms the backbone of the spatial strategy. Zoning regulations and soil renaturalisation measures ensure a continuous green infrastructure system. The developable area is divided into two strips that run parallel to the fjord: a northern band for commercial activities and a southern band for residential use, including senior housing. Within the latter, three U-shaped residential blocks open towards the fjord, offering visual and physical access to the water. Although formally private, their courtyards are publicly accessible, exemplifying a hybrid form of semi-publicness blending environmental and social functions.

Aligned with the logic of implementation in *Urban Political Ecology*, the project operationalised sustainability through spatial design, regulatory frameworks, and decentralised governance. A mandatory homeowners' association is tasked with managing green infrastructure, stormwater drainage, lighting, parking, and internal circulation, thereby reflecting an emerging use of property-based models for the maintenance of urban commons.

Between the two functional zones, a linear park that runs through the site functions as the central environmental and social spine. Equipped with playgrounds, sports facilities, and art installations, the park serves as both connective infrastructure and a space for everyday encounters. Architectural and spatial coherence is safeguarded through prescriptive frameworks and a binding urban design manual that regulates materials, pavements, street furniture, and lighting.

To promote architectural experimentation, Subzone B3I, located near the railway bridge, was designated as an 'Architectural Experimentaria'. This land-use designation is intended to encourage the design of buildings that are both formally and materially distinctive. Within this area, the *Care Home of the Future* was developed as an experimental project, conceived to give the site a strong identity and enhance dialogue between contemporary architecture, the fjord landscape, and the existing industrial heritage.

Urban lighting guidelines promote selective illumination of key features and sustained vibrancy through regulated office lighting. The provision of floating pontoons will allow recreational and maritime activities, complemented by kiosks and caf  s along the promenade. Collectively, these interventions redefine the waterfront as a multifunctional and inclusive public realm that embeds sustainability into the fabric of everyday urban life.

Nordhavnen: A New Urban Threshold between the Bridge, the Port, and the City

The regeneration of the N  rresundby waterfront entered a new phase in 2012, when the Port of Aalborg sold an approximately 20,000 m² site located immediately east of the Limfjord bridge. The land was acquired by two private actors – a construction company and a property development firm – who expressed the intention to transform the former port area into a new mixed-use urban district. The proposal envisaged the construction of a hotel, a

restaurant, a grocery store, residential buildings, and office spaces, in line with contemporary urban development strategies focused on functional densification and the revitalisation of disused areas along the fjord.

In 2013, the municipal administration started a preliminary debate, which was structured to gather input and expectations from residents regarding potential transformation scenarios for the site. This participatory exercise, while limited in its institutional scope, exemplifies a procedural mode of governance aimed at legitimising spatial change through iterative negotiation and communicative planning. It reflects an emerging model of urban governance in which the public administration relinquishes a degree of direct control and acts, to a greater extent, through coordination and facilitation, which facilitates planning processes that are flexible to private initiative while still being orientated towards public value.

The existing context presented significant environmental and morphological challenges: the area was heavily affected by through-traffic on the bridge, and the disused port front faced a degraded industrial landscape, despite its location at one of the most scenic viewpoints in the urban centre. Moreover, the proximity of the *Hedegaard Agro* plant posed a major environmental nuisance in the form of particularly dust, bad smells and noise, which was incompatible with the residential and recreational functions envisaged in the project. These tensions highlight a key dimension of *Urban Political Ecology*: the uneven distribution of environmental burdens and amenities across urban space and the need for planning frameworks that confront these contradictions rather than merely aestheticise post-industrial landscapes.

Key themes emerging from the public consultation included the need for a waterfront renewal in continuity with the developments already realised along the western seafront; the creation of a high-quality architectural urban front that would enhance the maritime interface of Nørresundby's centre; the strengthening of connections between the city and the water; the provision of well-equipped and comfortable public spaces along the coast suitable for rest and interaction with the marine environment; and the upgrading of the existing quay. There was broad consensus among citizens concerning the last two requirements due to the south-facing orientation of the waterfront, which ensures exposure to the sun throughout the day, and its intensive use by the local population for recreational fishing and boating. It is worth noting that the stretch of fjord near the bridge is recognised by residents as a particularly rich fishing area, owing to the seasonal presence of large schools of herring and garfish.

In 2014, responding to the aspirations voiced through the participatory process and in alignment with the city's broader urban transformation strategy, Aalborg Municipality approved Local Plan 1-2-109 (Aalborg Kommune 2014), which formally designated the *Nordhavn* site for mixed-use urban development. The plan permitted a maximum buildable area of 15,700 m² and represents a decisive step in translating earlier visions of functional densification and fjord-facing redevelopment into a statutory planning framework. Concurrently,

an agreement was concluded with the agro-industrial company *Hedegaard Agro*, which established an 8-year transitional period during which the environmental impacts from loading and unloading operations would be progressively mitigated, ultimately leading to the scheduled closure of the plant.

This dual-track strategy – simultaneously enabling private-sector development and orchestrating the gradual phasing out of incompatible industrial activities – reflects a calculated response to multiple axes of urgency: environmental health, land-use conflict, and the broader symbolic imperative of re-establishing a civic relationship to the water. Framed through the lens of *Urban Political Ecology*, this move underscores the importance of addressing socio-environmental contradictions not merely through technological fixes or post-hoc remediation but by embedding environmental rationalities into the urban project from the outset.

The local plan articulates a differentiated land-use schema, combining hospitality, commercial, and residential functions. Crucially, it imposes specific constraints on ground-floor programming along key public interfaces, mandating the inclusion of cultural, recreational, and entertainment functions to ensure the activation of street life across temporal cycles. The area was conceived as an integral part of a broader urban regeneration programme, inspired by the locally developed guidelines set out in the *City Catalogue*, with the aim of revitalising the centre of Nørresundby. This process resulted in a series of coordinated interventions, including the refurbishment of existing buildings and courtyards and a holistic urban renewal project in the area north of Vestergade. The latter involved the creation of new squares and street-level public spaces, the installation of a stage in the central square, collaborative initiatives for the construction of wooden boats, and numerous other projects aimed at enhancing the identity and liveability of the neighbourhood. These stipulations point to a governance logic concerned with implementation in the phronetic sense: not simply codifying land use through regulation but shaping everyday urban experiences through participatory design and normative commitments to quality of life, accessibility, and spatial justice.

An extension of the marina for recreational boating is also planned on the northern side of the pier, which was envisioned both as an amenity and as a symbolic anchor for the maritime identity of the site. This intervention exemplifies the pursuit of *Just Sustainability*, not as an abstract ideal, but as a situated spatial strategy to reconfigure the waterfront as a shared, lived, and sensorial urban commons. The emphasis on sun-exposed public spaces, combined with provisions for fishing and boating, reinforces the recognition of embodied environmental knowledge and local place attachment within the planning process.

The transformation of *Nordhavnen* articulates a vision of *Just Sustainability*, one in which environmental remediation, urban habitability, and the right to access public space are addressed in tandem. The project's attempt to revalorise a neglected edge of the city as a socially vibrant and environmentally sensitive zone reflects the logic of implementation at the core of *Urban Political*

Ecology: the embedding of environmental objectives into material interventions that reshape everyday spatial practices. Moreover, the wide public support for enhancing marine infrastructure and fishing facilities signals an environmental imaginary rooted in lived experience, where the fjord is not only an aesthetic asset but also a source of subsistence, recreation, and identity (Figure 5.5).

As such, *Nordhavnen* illustrates the challenges and opportunities connected with urban redevelopment under conditions of fragmented landownership, legacy pollution, and infrastructural saturation. While the site remains embedded in market-driven logics, the governance approach adopted by the municipality prioritises a hybrid planning model in which urban sustainability is not imposed through top-down regulation but negotiated through collective engagement and spatial experimentation. In doing so, it demonstrates that urban planning can function as a mediating practice that balances environmental constraints, community aspirations, and economic feasibility in the pursuit of more equitable urban futures.

Importantly, the approval of the local plan also functioned as a catalyst for renewed public debate about the future of the eastern waterfront, including the heavily contaminated area of *Stigsborg*. As such, it reflects that planning may serve not only as a technical apparatus for spatial regulation but also as a



Figure 5.5 View from the Sea of the Nordhavn District.↵

(Photo: Alessandra Badami).

governance mechanism for staging broader conversations about urban futures. In this light, the *Nordhavnen* plan exemplifies a moment of *Phronetic Urbanism* in which legitimacy is constructed not through procedural closure but through continued responsiveness to evolving environmental, social, and symbolic claims.

Stigsborg: Governance Innovation and Sustainability at the Neighbourhood Scale

The development of *Stigsborg* marks a significant step in Aalborg's broader transformation from an industrial to a knowledge- and sustainability-orientated city. Its scale, vision, and governance structure reflect a distinct phase of waterfront evolution, moving beyond isolated projects to a comprehensive, long-term urban sustainability strategy.

Located on the north-eastern edge of the Limfjord, *Stigsborg* represents one of Denmark's largest urban regeneration projects, built on a former acid and fertiliser production site and additional brownfield land. Covering an area of approximately 54 hectares, *Stigsborg* is located on the promontory delineated by a broad bend of the Limfjord to the east of Nørresundby's urban centre. The toponym derives from a small bastion dating back to the late Middle Ages, historically located in the area, which was demolished in 1913 to make way for an industrial facility dedicated to the production of sulphuric acid. This plant, which throughout the twentieth century was one of the most significant manufacturing operations in the region, employed up to 500 workers during the 1960s. In 1989, the ownership of the factory was transferred to a Finnish group, and the site was renamed *Kemira*.

By the end of the century, increasing environmental problems associated with industrial activity – particularly regarding air, soil and water pollution – led to repeated penalties for environmental damage, culminating in the permanent closure of the facility in 1998. In 2001, the Municipality of Aalborg acquired the decommissioned industrial area with the aim of promoting its regeneration. Within this framework, all industrial structures were progressively demolished – despite the fact that a section of the public was against it as they considered some of them worthy of preservation – with the exception of the acid container: a large spherical structure that today serves as an isolated sculptural landmark and evocative symbol of the site's industrial past.

The environmental legacy left by the former land use proved to be particularly severe: the production of sulphuric acid and fertilisers, together with the presence of oil storage facilities, resulted in widespread contamination of soils and groundwater due to the presence of heavy metals, arsenic and hydrocarbons. At the time of purchase, the site had not undergone decontamination, which meant that the entire burden of remediation fell to the municipal administration. An environmental investigation conducted after the acquisition revealed high concentrations of pollutants and many compromised areas, which would require a significant sum to cover remediation costs. This also had a significant influence on both the urban transformation strategies and the possible land uses.

The redevelopment of the *Stigsborg* area began in 2003 and has proven to be a complex, long-term undertaking. At the time, the landscape architecture firm SLA (*Stig Lennart Andersson Landscape Architects*) developed a masterplan that also included provisions for public participation. However, the project remained stalled for many years due to the scale of the site, the significant environmental contamination resulting from former industrial activities, and the concurrent urban transformation projects that unfolded in the following years.

A significant turning point came in 2011, when the former industrial district was designated as one of the ‘urban transformation areas’ within the municipality’s long-term strategy, *Fysisk Vision 2025*, and formally integrated into the main framework of the 2013 municipal master plan. The operational phase commenced in 2016, when the Municipality of Aalborg launched a design competition to define a strategic vision for the regeneration of the entire area. Following the competition results, three interdisciplinary teams were selected and commissioned to develop a unified strategic plan.

Given the scale of the intervention, the site was divided into three project areas: *Havnekvarteret*, corresponding to the western portion still occupied by the operational *Hedegaard Agro* plant; *Parkkvarteret*, situated in the central area on the former *Kemira* site; and *Strandkvarteret*, located to the east, formerly the site of industrial plants and sports facilities, including a stadium. In 2017, the City Council approved the general development strategy and, in 2020, formally adopted the Local Plan 1-2-118 (Aalborg Kommune 2020) relating to the central area of *Parkkvarteret* (Figure 5.6).



Figure 5.6 Urban Redevelopment Plan of The Former Industrial District of Stigsborg. (Source: Aalborg Kommune 2020).

The urban transformation is structured in three sequential phases: Phase 1 concerns the *Parkkvarteret* area; Phase 2 will affect the western area currently occupied by *Hedegaard Agro*, which is expected to remain in operation until around 2028; Phase 3 will concern the eastern area, which is planned to be developed between 2030 and 2043. The entire regeneration process, which is estimated to take between 25 and 30 years, envisions a total development capacity of approximately 400,000 m², with the construction of around 4,000 housing units and a projected population of 7,500 residents.

To implement the first phase, a public-private partnership (PPP) was established in 2018, which includes the municipality of Aalborg as landowner, the developer A. Enggaard, and the pension fund PFA (*Pensionsforsikringsanstalten*, Pension Insurance Institution) through the urban development company Stigsborg P/S. The private partners were selected through a public tendering process. The adopted organisational model, which is unprecedented in Denmark, means that the municipality retains 49 per cent of the joint venture's shares, thereby ensuring direct control over decision-making processes and the possibility of benefiting from land value increases. At the same time, the involvement of private actors makes it possible to mobilise financial resources and technical expertise that can enhance the effectiveness of implementation. Negotiations between public planners and private developers were integrated into the governance structure, thereby contributing to greater efficiency and resilience in the implementation process (Thomsen 2020).

The long-term transformation of the district has been managed through a combination of a local framework plan and a detailed local plan. The framework plan defines the overarching principles, strategic objectives and general guidelines for the entire district without conferring development rights, while the detailed local plan, which refers to a specific sub-area, establishes land-use destinations and building regulations. This hybrid structure facilitates a balance between flexibility and coherence, thus ensuring that future developments remain aligned with the overarching vision of the masterplan.

Parkkvarteret: Environmental Remediation Strategies and Climate Adaptation

Local plan 1-2-118 pertains to the sub-area of *Parkkvarteret*, which spans approximately 37 hectares, comprising 33 hectares of existing land and an additional 4 hectares to be created through infill along the shallow stretch of the Limfjord waterfront at central *Stigsborg*. The plan envisions the construction of approximately 210,000 m² of gross floor area, corresponding to a residential capacity of about 3,900 inhabitants.

The overall vision underpinning the local plan for *Parkkvarteret* is grounded in the objective of creating a new eco-district marked by a strong green identity and high environmental standards. As already noted, the definition of land uses has been significantly influenced by the site's pre-existing soil contamination, making the mitigation of health risks associated with exposure to pollutants a primary concern in the design phase.

The most severe environmental issue involved the presence of arsenic in the soil and groundwater, found in concentrations in some parts of the site that rendered residential development incompatible. The sub-area corresponding to the former *Kemira* plant was identified as the most environmentally compromised. In this context, the main risks included both direct human contact with surface contaminants and the leaching of heavy metals into the Limfjord.

The technical strategy adopted to address the first type of risk involved isolating the contaminated soils with a protective cover. This consisted of multiple layers: a base layer of inert material was placed directly over the polluted soil to interrupt the upward capillary movement of contaminated groundwater; above this, a geotextile layer was added to prevent clean soil from migrating downward and to avoid the re-establishment of capillary connections with the polluted substrate. Finally, a surface layer of purified soil was added to accommodate the uses designated by the plan.

Despite the surface remediation work, specific land-use restrictions were imposed on the sub-area. To avoid compromising the protective barrier, the local plan prohibits the planting of deep-rooting trees and the construction of buildings requiring deep foundations. For this reason, the sub-area has been designated as public parkland, named *Stigsparken*, which will unfold in a landscaped sequence that slopes down towards the waterfront, where sandy beaches and facilities for recreational boating and public access to the shoreline are planned.

To address the risk of heavy metals leaching into the fjord, the plan implemented a three-pronged technical solution: firstly, the coastal arsenic deposit – identified as the primary source of marine contamination – was isolated using interlocking sheet piles driven deep enough to fully enclose the deposit; secondly, the deposit was sealed with a root-resistant impermeable membrane to prevent infiltration and dispersion; and thirdly, the contaminated seabed was covered with a layer of clean sand to reduce the concentration of suspended pollutants.

Given the widespread presence of heavy metals along the entire shoreline of the former *Kemira* industrial site, the remediation plan included a seaward extension of the coastline by approximately 750 metres. This was achieved through the infill of the shallow section of the fjord with clean sand. The intervention serves a dual purpose: on the one hand, the clean sand, placed over impermeable layers that isolate the contaminated sediments, enables the creation of a new publicly accessible beach; on the other hand, shifting the shoreline towards an area where the fjord is deeper facilitates stronger underwater currents, which in turn accelerate the dilution of arsenic concentrations and aid in the dispersion of residual heavy metals.

Both technical measures, which involved adding significant volumes of soil and sand, raised the ground level compared to the mean sea level. This topographical elevation also functions as a climate adaptation measure, as it reduces the risk of flooding from extreme storm surges and potential future sea-level rise, in accordance with Aalborg Municipality's goal of urban resilience.

The environmental remediation strategies laid out in the regeneration plan do not entail the complete elimination of risks but rather their mitigation to levels compatible with the intended urban uses. This awareness has been a fundamental premise in defining the urban design and functional layout of the new district. Specifically, the central area, which recorded the highest levels of contamination and is subject to land-use restrictions, has been designated as non-buildable public space.

Urban Structure, Environmental Resilience and Public Space Quality in the Parkkvarteret Lokalplan

Local plan 1-2-118 governs in detail the urban interventions within the residential sub-area of *Parkkvarteret*, located along the western edge of *Stigsparken*. In this area, the plan provides for the construction of residential buildings up to a maximum height of six storeys, arranged around internal courtyards equipped with private green spaces for public use. A key structuring element of the project is represented by the *Syrestien*, an environmental corridor that meanders through the urban fabric, forming a gradual transition between natural landscapes with vegetated soils and the built environment characterised by paved surfaces. The green infrastructure, which comprises the park, the beach, the inner gardens and the *Syrestien* environmental path, forms the environmental framework of the district, shaping its morphology and contributing to the environmental and landscape quality of the settlement.

One of the most qualifying aspects of the new neighbourhood is its location overlooking the Limfjord, which the plan seeks to enhance through the construction of a pedestrian promenade (*Havnepromenade*), culminating in a new public square on the fjord, named *Fjordpladsen*. The transition between the built urban front and the western beach will be articulated by a circular pedestrian pier (*Ring*), designed to facilitate close contact with the marine environment and the development of recreational and nautical activities. This development will be situated adjacent to the proposed landing point of a future pedestrian and cycle bridge. While the proposal to construct this new bridge connecting Nørresundby and Aalborg – near *Musikkens Hus* – is still under discussion, its realisation would undoubtedly enhance the urban centrality of the new district and strengthen the connection between the two urban areas across the Limfjord.

To endow the neighbourhood with a strong appeal and ensure high urban quality, the plan provides for functional diversification that combines residential use with commercial, catering, office and educational facilities. In line with this vision, the transformation process of *Stigsborg* was initiated in 2001–2002 with the construction of an office building housing two municipal departments. Around this administrative core, a compact urban fabric is to be developed, structured in courtyard blocks; in particular, the blocks facing the waterfront will be configured as open courts towards the seafront and will host, at ground-floor level, commercial and recreational functions designed to enliven the public space of the promenade.

In the strategies envisaged by the plan to provide centrality and attractiveness to the new district, educational functions play a prominent role: these will be concentrated in a single large building, the *Børne- og Ungeunivers* (Universe of Children and Youth), which is conceived as an integrated school campus intended to accommodate classes of various educational levels. The complex is part of a holistic pedagogical vision in which both the built environment and nature are understood as extensions of the learning experience. Around the building, a public square – *Skolepladsen* – will be developed, equipped with playgrounds, shock-absorbing surfaces, fountains, scooter tracks, and spaces for events and installations. The square will be physically and functionally connected to the central park, thereby offering children and young people opportunities for outdoor educational activities in direct contact with nature. The transitional areas between the school and the park will be equipped with sports fields and open-air play areas, which will enhance the multifunctionality of the open space. *Skolepladsen* has been designed as a flexible and accessible public space, which can also be used outside school hours: in the evenings and at weekends, the school courtyard and recreational-sports facilities will become part of the district's leisure infrastructure. The presence of such a structured educational complex represents a significant attraction, especially for young families with children.

For each block, the local plan defines specific design parameters relating to the *kantzoner*, i.e., the perimeter strips adjacent to the buildings, intended to mediate the transition between the private sphere and public space (design parameters also used in other projects, such as *Spritten*; see Chapter 6). These areas play a key role in enhancing urban quality, as they increase opportunities for outdoor use and enrich the environmental and perceptual dimensions of the streetscape.

The design of the *kantzoner* is conceived in close relation to the functional and distributional configuration of the ground floors of the adjacent buildings, thereby fostering physical and functional continuity between private use and public space. The plan identifies the following three main types of perimeter strips, which are differentiated in terms of width and orientation: wide strips (3–4 metres), positioned along façades facing south and west, as well as overlooking the Limfjord and *Stigsparken*; medium-wide strips (approximately 2 metres), to be located along east- and north-facing façades; and narrow strips (around 80 centimetres), to be used along carriageways and denser urban spaces. This morphological articulation enables the adaptation of design solutions to different microclimatic, exposure and usage conditions, thereby contributing to a more vibrant, diverse and sustainable urban environment.

The urban plan also systematically integrates devices for climate change adaptation and sustainable stormwater management, articulating these strategies within the morphology and structure of the urban fabric. A key element of the layout is *Stigsborg Bygade*, the main road axis-orientated north–south, which plays a structuring role not only in terms of functional connectivity but also as an ecological and hydraulic infrastructure. Along this artery, conceived as a permeable boulevard, there will be a continuous green corridor with trees,

flower beds, grassy surfaces, pedestrian pavements and cycle lanes. The road section, in addition to promoting sustainable mobility and improving environmental quality, is designed to serve a primary hydraulic function as the main collector of rainwater along with the parallel streets. For this reason, these streets have a constant gradient of 5‰ towards the Limfjord. Conversely, the secondary east-west road network is intentionally staggered to avoid straight intersections to enhance urban traffic safety and reduce the impact of the prevailing westerly wind.

All public and semi-public spaces in the district – including streets, internal courtyards and green areas – are designed as devices for the collection and treatment of stormwater, which will be channelled into retention basins and phytoremediation systems. In these systems, water can be filtered and purified before being discharged into the fjord, according to principles of integrated and sustainable water cycle management.

It is crucial to note that, due to subsoil contamination, the plan prohibits the uncontrolled infiltration of rainwater, thereby necessitating entirely controlled surface management. In this context, rainwater is no longer regarded as a critical factor to be eliminated but rather as an active resource for the neighbourhood: a resource that, if properly managed, can contribute to the irrigation of green areas, enhance local biodiversity, improve the urban microclimate, and elevate the overall environmental quality of the built space.

Sustainability in Practice: Public-Private Co-Governance and Adaptive Strategies

The development of *Stigsborg* has been framed by Aalborg Municipality as a flagship neighbourhood guided by broad sustainability ambitions. These ambitions are expressed in spatial, ecological, and social terms, ranging from integrated rainwater management and green infrastructure to housing diversity and mobility transitions.

Reflecting the planning logic of implementation, the local plan established targets for mixed housing types, sustainable transport infrastructure, decentralised water management, and recreational landscapes. These provisions are grounded in the UN's Sustainable Development Goals (SDGs), which serve as both strategic reference points and operational benchmarks.

However, the case of *Stigsborg* also reveals the tensions inherent in sustainability governance. The adaptive reuse of brownfield land, while environmentally strategic, involved compromises in terms of economic feasibility and investment attractiveness. Despite these ambiguities, the *Stigsborg* strategy illustrates experimentation and reflexivity in planning practice. Crucially, the governance structure of *Stigsborg* blurs the boundaries between public interest and market rationality. While the municipality retains influence through regulation and planning frameworks, it also pursues profit and spatial control as a stakeholder in the PPP. This dual role mirrors broader shifts in urban governance, whereby municipalities act as co-investors, facilitators, and norm entrepreneurs.

Temporalities of Implementation: Staging Sustainability Over Time

The transformation of Nørresundby's waterfront did not follow a linear or predetermined trajectory. Instead, it unfolded through a series of overlapping temporal rhythms shaped by institutional inertia, socio-political negotiation, and evolving environmental imaginaries. From early interventions like *Lindholm Strandpark's* environmental remediation to the long-term strategic redevelopment of *Stigsborg*, the waterfront's evolution reveals a layered, adaptive process of implementation. Each major project introduced a distinct temporal layer: *Lindholm Strandpark* set an early symbolic and environmental precedent; DAC and *Lindholm Brygge* unfolded over a decade of negotiation that balanced heritage, densification, and feasibility; *Nørresundby Havnefront* demonstrated the phased reclamation of public space; the *Danish Crown* site marked a critical moment of large-scale reprogramming; *Nordhavnen* showcased the negotiation between public engagement and market feasibility; and *Stigsborg* extended the time horizon with its 25-year strategic development trajectory. Together, these episodes reflect a planning culture of staged activation, whereby interventions accumulate, iterate, and occasionally recalibrate in response to institutional learning, stakeholder mobilisation, and environmental urgency.

This temporal perspective reinforces the implementation logic proposed in the *Urban Sustainability Compass*. It highlights that implementation is not simply the downstream application of static plans but a dynamic and recursive process. Delays, revisions, and tactical recalibrations are not failures but fundamental aspects of adaptive planning in complex urban environments. Importantly, the extended timeframe enabled reflexivity: municipal strategies were adjusted, and participatory processes re-engaged residents. The long-term arc of *Stigsborg* exemplifies that planning practices adapt over time, enabling sustainability through processes that are negotiated, contested, and responsive. The cumulative result is not a linear master plan but a mosaic of interconnected actions, a temporal choreography of sustainability in the making.

Applying the Compass to Nørresundby

The Nørresundby waterfront is an example of the four logics of the *Sustainability in the Making Compass* intersecting to shape post-industrial urban transformation. While all four logics are present across the redevelopment sites, their relative prominence varies by project (Table 5.1).

Urgency is visible in initial interventions such as the environmental remediation of *Lindholm Strandpark* and the decommissioning of industrial infrastructure at the DAC site. These actions responded to degraded environmental conditions and socio-spatial fragmentation, which necessitated immediate planning and investment.

Legitimation has been central throughout, particularly in projects like the Danish Crown redevelopment and *Nordhavnen*, where participatory planning

Table 5.1 Nørresundby Waterfront Projects and the Sustainability in the Making Compass (Elaboration: Enza Lissandrello) ↵

<i>Project/Area</i>	<i>Urgency</i>	<i>Legitimation</i>	<i>Implementation</i>	<i>Experimentation</i>	<i>Dominant Theoretical Lens</i>
Lindholm Strandpark	Environmental degradation prompted initial intervention	Public support for environmental restoration	Minimal intervention, natural materials, accessible design	First case of environmental/public reuse strategy	Urban Political Ecology
DAC	Post-industrial decline and brownfield status	Conflicts over heritage reuse and private development visions	Local Plan negotiations, adaptive zoning, building reuse	Hybrid towers, climate adaptation criteria	Urban Sustainability Governance / Phronetic Planning
Danish Crown	Industrial obsolescence	Participatory planning and design workshops	Prescriptive zoning, linear park, shared courtyards	Architectural Experimentaria, floating pontoons	Phronetic Planning / Urban Sustainability Governance
Nordhavnen	Port deactivation, environmental nuisances	Public consultation for mixed-use reimagining	Marina, zoning with social programming, transitional agreements	Negotiation of fishing heritage and modern needs	Just Sustainability / Urban Political Ecology
Stigsborg	Growing demand for housing due to urban expansion and climate adaptation	Processes between the municipality and private stakeholders	Specific targets for housing diversity, rainwater management, and sustainable mobility	High degree of experimentation through its governance model (PPP)	Urban Sustainability Governance / Just Sustainability / Phronetic Planning

processes, civic engagement, and visual-symbolic integration were mobilised to secure societal support and institutional buy-in. Instruments such as local plans and statutory public consultations formally institutionalise this logic, thereby embedding legitimacy into the planning process.

Implementation has remained the dominant logic, particularly in the sequencing and layering of interventions. From zoning amendments to landscape architecture, the physical and regulatory frameworks in each case were geared towards operationalising sustainability principles through design, infrastructure, and governance mechanisms.

Experimentation cuts across all projects, reflecting a willingness to test new typologies, hybrid governance mechanisms, and spatial forms. From the 'Architectural Experimentaria' in the *Danish Crown* area to the use of green infrastructure, the district has become a laboratory of situated innovation. The inclusion of formerly industrial buildings like *Katedralen* into mixed-use towers and the selective preservation of silos further show that experimentation enables negotiated compromise between heritage, sustainability, and market forces.

The *Stigsborg* development extends and deepens these insights. As one of Denmark's largest brownfield redevelopments, *Stigsborg* encapsulates all four planning logics. *Urgency* is rooted in the need to address soil contamination, the risk of flooding, and the demand for housing. *Legitimation* is sought through alignment with the UN Sustainable Development Goals, participatory governance, and partnerships with civil society. *Implementation* unfolds through phased local plans, PPP frameworks, and sustainability metrics. While *experimentation* is evident in innovative planning tools, they have been supported by planning methods legally required by governance structures to adapt responses to technical and financial constraints.

Importantly, these logics do not function in isolation but evolve in recursive feedback loops. Early experimentation in *Lindholm Strandpark* generated new expectations for sustainability and public access, which informed subsequent planning at DAC and *Nordhavnen*. Similarly, the ongoing development of *Stigsborg* is both informed by and reshapes Aalborg's broader sustainability discourse. Planning thus becomes a reflexive practice; one that adapts through iteration and governs through engagement. As Willson (2020a:7) observes, 'planners often move through assignments in a provisional, experimental manner. They also encounter incongruity between their values and the choices made by decision makers'.

In line with the theoretical framework of Chapter 1, Nørresundby demonstrates that sustainability is not a preconfigured template, but an emergent practice mediated by socio-material conditions, political negotiation, and institutional learning. The Compass allows us to not only trace what was done, but also to establish that rationalities shifted, consolidated, and reoriented across time and space (Figure 5.7).

This integrative analysis suggests that planners must engage with sustainability not as a static blueprint but as a field of evolving possibilities that are shaped by contestation, contextuality, and collective experimentation.

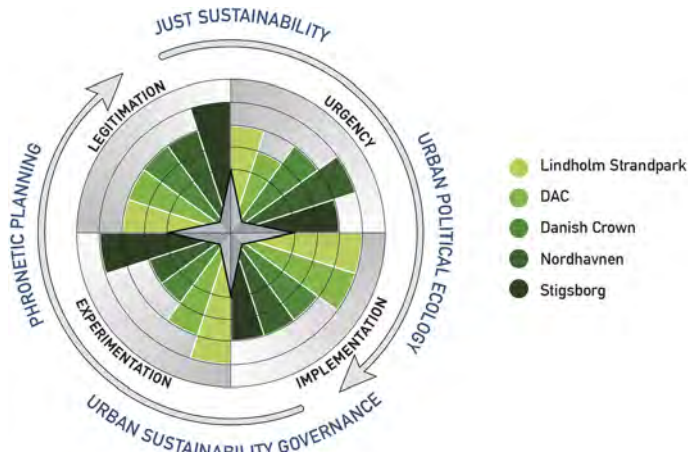


Figure 5.7 The Sustainability in the Making Compass Adapted to Nørresundby's Waterfront. ↩

(Concept and design: Enza Lissandrello; visual elaboration: Alessandra Badami).

Conclusion: Understanding Urban Sustainability in the Making through the Nørresundby Transformation

The transformation of Nørresundby's waterfront provides a compelling empirical case through which to understand urban sustainability in the making. Applying the *Sustainability Compass* reveals that urgency, legitimation, implementation, and experimentation intersect and co-evolve to shape adaptive planning practices. These logics not only coexist, but they also inform the spatial, procedural, and narrative dimensions of post-industrial redevelopment.

The answer to the chapter's research question – *How can the transformation of Nørresundby's waterfront inform an understanding of urban sustainability in the making through the lens of implementation, experimentation, legitimation, and urgency?* – is that sustainability does not arise from top-down imposition or technocratic solutionism. Rather, it is enacted through iterative, contested, and reflexively governed processes. Planning emerges as a practice of framing problems, negotiating values, and constructing situated futures that are anchored in socio-material realities and evolving environmental imaginaries.

The chapter offers several key takeaways for planners as urban sustainability makers. *First*, urban sustainability requires reflexivity to allow planning practitioners to synthesise strategy, ethics, and institutional responsiveness. Reflexivity is not only a methodological strategy but also a foundational mode of navigating uncertainty and innovation.

Second, sustainability requires attention to both symbolic and material urban dimensions, where planning narratives align with built form, and legitimacy is cultivated through public engagement and spatial storytelling.

Third, sustainability benefits from experimentation – even when partial or provisional – as a platform for policy learning, institutional evolution, and spatial adaptation to changing urban conditions.

The inclusion of the *Stigsborg* project further illustrates the long-term and systemic character of sustainability implementation. With its ambitious sustainability strategy, public-private governance model, and adaptive responses to economic and regulatory constraints, *Stigsborg* extends the temporal and institutional horizon of sustainability planning. It highlights the challenge of balancing ambition with feasibility and demonstrates that sustainability is shaped not by isolated interventions, but through iterative alignment between vision, stakeholder capacity, and evolving constraints.

Ultimately, the Nørresundby transformation brings the evolving role of planners as makers of sustainability to the fore, negotiating the terrain between past industrial legacies, present environmental and social demands, and future aspirations. The Compass provides a critical lens based on the understanding that sustainability is performed, materialised, and governed, not as a static goal, but as a dynamic, contextual, and relational process.

References

- Aalborg Kommune. 1989. *Lokalplan 12-029: Nørresundby Området, Thistedvej – Kvarteret, Lindholm Strandpark*. Aalborg: Planlægningssekretariatet.
- Aalborg Kommune. 1999. *Fjordkatalog*. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2000. *Lokalplan 12-053: DAC-Området, Thistedvej-Kvarteret, Nørresundby*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2001. *Lokalplan 12-045: Nørresundby Havnefront, Nørresundby*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2006. *Lokalplan 12-072: Slagteriområdet, Nørresundby Midtby*. Aalborg: Teknisk Forvaltning.
- Aalborg Kommune. 2010. *Lokalplan 1-2-103: Erhverv Og Boliger, Lindholm Brygge, Nørresundby Midtby*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2012. *Lokalplan 1-2-107: Boliger Og Erhverv, Lindholm Brygge, Nørresundby Midtby*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2014. *Lokalplan 1-2-109: Nordhavnen, Havnegade, Nørresundby Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2016. *Lokalplan 1-2-112: Boliger, Lindholm Brygge 9, Nørresundby Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2020. *Lokalplan 1-2-118: Etape 1, Stigsborg Havnefront, Nørresundby Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Andersen, A. J. 2013. *Urbane Projekter: Mellem, Sted, Diskurs Og Planlægning*. Aalborg: Aalborg Universitet.
- Badami, A. 2022. *La Rigenerazione Urbana Di Aalborg. Un Modello Di Sviluppo Sostenibile per Il Futuro Delle Città*. Milano: FrancoAngeli.
- Bender, H., and M. Pedersen. 2006. *Aalborg Og Cementen*. Aalborg: Stadsarkiv og Aalborg Historiske Museum.
- Galland, D., and C. J. Hansen. 2012. “The Roles of Planning in Waterfront Redevelopment: From Plan-Led and Market-Driven Styles to Hybrid Planning?” *Planning Practice and Research* 27(2):203–25. doi:10.1080/02697459.2012.661669
- Holm, P. 1999. *Aalborg Og Søfarten 500 År*. Aalborg: Selskabet for Aalborg Historie, Aalborg Historiske Museum.

- Lissandrello, E., and J. Grin. 2011. 'Reflexive Planning as Design and Work: Lessons from the Port of Amsterdam'. *Planning Theory & Practice* 12(2):223–48. doi:10.1080/14649357.2011.580156
- Schon, D. A. 1983. *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.
- Thomsen, H. 2020. *ENSURE – European Sustainable Urbanisation through Port City Regeneration. Targeted Analysis. Annex 4.1 – Case Study Report: Aalborg (DK)*. Luxembourg: Espon.
- Willson, R. 2020a. *Planning with Complexity and Ethics*. London: Planning Press.
- Willson, R. 2020b. *Reflective Planning Practice: Theory, Cases, and Methods*. London: Routledge.

6 Green Infrastructures and Ecological Design

Alessandra Badami

Introduction

Ecological regeneration of urban spaces is a key response to the complex environmental challenges that cities face today, particularly considering increasing climate change and the pressures of urban growth. In this chapter, six emblematic interventions undertaken in Aalborg are examined: *Østerå*, *Karolinelund*, *Godsbanearaelet*, *Gabriel*, *Eternitten*, and *Budolfi Plads*. Each of these projects exemplifies the integration of green infrastructure and ecological design as key mechanisms in urban regeneration, reconfiguring urban landscapes while promoting environmental sustainability, social inclusion, and resilience.

Framed within the *Urban Sustainability Compass* (as discussed in Chapter 1), the chapter highlights how sustainability practices in Aalborg are deeply rooted in the local context, shaped by the city's unique ecological, social, and cultural history, and influenced by the different actors involved in urban planning processes.

The projects presented in this chapter showcase a variety of approaches to urban ecological regeneration, ranging from the 'daylighting' of urban waterways like *Østerå* to the 'rewilding' of public spaces such as *Budolfi Plads* and the revitalisation of disused and highly contaminated industrial sites, such as *Eternitten*. In each case, ecological interventions have been framed not only as technical solutions but also as opportunities to rethink the relationship between humans and nature within the urban fabric. Furthermore, these projects highlight the growing importance of participatory processes in urban regeneration, with a focus on the active involvement of local communities in decision-making, shared design, and responsible management.

Structure of the Chapter

This chapter is structured to provide an in-depth analysis of how green strategies have been integrated into Aalborg's urban regeneration initiatives. The opening section introduces the theoretical and methodological framework, and Section 3 sets the stage for the subsequent examination of case studies. Section 4 is dedicated to the detailed analysis of several significant projects that

illustrate the reactivation of interrupted natural cycles and the restoration of urban ecologies. The *Østerå* River serves as the central case study, with a focus on the daylighting process, the reconnection of its northern reaches with the riverfront, and the regeneration of adjacent urban areas such as *Karolinelund*, *Godsbanearæalet*, and *Gabriel*. Section 5 moves to the case of *Eternitten*, a former industrial site, exploring how green urbanism has influenced its transformation into a sustainable and multifunctional urban area. Section 6 delves into the regeneration of *Budolfi Plads*, located in the historic heart of Aalborg, offering a paradigmatic example of the ‘rewilding’ approach in urban design. The chapter concludes by framing these interventions in a broader conceptualisation of urban regeneration as an ecosystem-based practice.

Theoretical Framework and Methodology

The global environmental emergency and the accelerating loss of biodiversity represent central challenges in the ecological transition of the 21st century. These priorities have been formally integrated into international policy agendas, as demonstrated by the proclamation of the United Nations Decade on Ecosystem Restoration 2021–2030 (United Nations 2019), the European Union’s Biodiversity Strategy for 2030 (European Commission 2021), and the Post-2020 Global Biodiversity Framework (United Nations, 2021).

Contemporary urban dynamics deeply affect natural cycles, especially hydrological, ecological, and atmospheric, thereby contributing to environmental degradation and increasing the vulnerability of urban settlements. Urbanism is now called on to facilitate the transition towards more sustainable and environmentally integrated settlement models. As early as 1969, McHarg, in *Design with Nature*, argued for an urban design approach grounded in a deep understanding of ecosystems and the capacity to connect the built environment with natural matrices (MacHarg 1969). More recently, theoretical contributions such as *green urbanism* (Beatley 2011) and the *resilient city* paradigm (Newman 2020; Newman, Beatley, and Boyer 2017) have reinforced the notion of systemic and adaptive planning that can address the challenges of climate change and environmental crisis.

In this perspective, the integration of green and blue infrastructure, the promotion of Nature-Based Solutions (World Bank, 2021), and the design of resilient urban spaces (Cohen-Shacham et al. 2016; Kabisch, Frantzeskaki, and Hansen 2022; Maes and Jacobs 2017) emerge as fundamental operational strategies for restoring a balanced relationship between human settlements and nature. The challenge goes beyond mitigating urban impacts; it calls for a structural transformation of the city into a system capable of regenerating environmental cycles, fostering biodiversity, and enabling new forms of coexistence between society and the environment.

Among the emerging approaches currently shaping urban environmental strategies, *urban ‘rewilding’* has gained prominence for its potential to reintroduce self-regulating environmental dynamics within densely anthropised settings,

thereby strengthening the resilience of urban landscapes. A particularly illustrative example is provided by the city of Aalborg, which, since the early 2000s, has undertaken a series of ambitious re-naturalisation projects. Notable among these are the daylighting of the *Østerå* River, originally culverted in the late 19th century to accommodate urban development; the rewilding of *Budolfi Plads*, one of the most symbolic public spaces in the historic core of the city; and the environmental remediation of *Eternitten*, a former cement and asbestos factory that had left behind hazardous pollutants in the soil. These interventions seek to enhance Aalborg's adaptive capacity in the face of climate change, while simultaneously improving environmental quality and fostering human well-being through the provision of ecosystem services delivered by nature (Bertram and Rehdanz 2015; Kabisch, Frantzeskaki, and Hansen 2022).

All three projects have been developed through participatory processes aligned with the principles of collaborative planning (Healey 1997) and have, therefore, actively involved citizens in various stages of consultation, public dialogue, and co-design. Notably, the temporary opening of disused areas along the *Østerå* corridor enabled a process of social reappropriation of space, which fostered collective exploration and the reinterpretation of place. In the case of *Budolfi Plads*, an extensive and vibrant public debate preceded the final drafting of the project. The designers were able to interpret and incorporate the proposals and priorities that emerged during the numerous stages of engagement with the public, investors, and relevant stakeholders. At *Eternitten*, in addition to environmental restoration, the planning process also accounted for the logistical preferences of prospective residents and the demand for green spaces and local amenities.

From an analytical standpoint, this chapter is anchored in the interpretive logics of *implementation* and *legitimation*, as outlined in Chapter 1. These conceptual lenses offer a framework based on an understanding of urban sustainability as being materially enacted through policy instruments and spatial design and socially consolidated through narratives, symbolic practices, and processes of alignment among diverse stakeholders.

Methodologically, the analysis adopts a *situated case study approach*, grounded in the triangulation of multiple sources of data. These include the systematic review of strategic and local planning documents, municipal reports, and regulatory frameworks, as well as direct site observations and critical engagement with media discourses. Furthermore, the research is informed by field reflections and insights derived from interviews and collaborative learning sessions conducted with municipal planners and urban practitioners.

Reclaiming Urban Ecologies: Daylighting and the Reactivation of Disrupted Natural Cycles

In European urban contexts, attention to urban rivers has significantly intensified following the adoption of the European Union's Water Framework Directive (2000/60/EC), which established specific qualitative objectives for all

water bodies and promoted their integrated and sustainable management. This legislation recognises watercourses as having multifunctional value which extends beyond hydraulic protection or climate adaptation to include social use and the recreational, sports, and therapeutic functions of riverine environments (Blau, Luz, and Panagopoulos 2018; Gonzáles del Tánago, de Jalón, and Román 2012).

Within this framework, the project to daylight the *Østerå* River represents a paradigmatic intervention aimed at reconnecting the southern natural areas and the fjord system through the creation of a green-blue corridor that traverses the urban fabric. The project seeks to enhance the ecosystem services provided by natural infrastructure, thereby strengthening urban resilience in the face of environmental risks associated with climate change, such as heat-waves, flooding, and biodiversity loss (Alves et al. 2020; Anzaldua et al. 2018; Bedla and Halecki 2021; Gerner et al. 2018; Ghofrani, Sposito, and Faggian 2020; Grizzetti 2019).

When designed integratively, green and blue infrastructure can also address recurring urban infrastructural and environmental challenges, including sewer system overload, air and soil pollution, habitat degradation, and a lack of accessible green spaces (Ahern, Cilliers, and Niemelä 2014). These spaces simultaneously help to improve environmental quality and the psycho-physical well-being of citizens, expanding opportunities for social interaction and active use of open spaces (Gómez-Baggethun et al. 2013). The COVID-19 pandemic further highlighted the significance of such spaces. As lockdowns unfolded, urban residents increasingly relied on nearby parks and green corridors to maintain well-being and social connections (Grima et al. 2020; Kakderi, Oikonomaki, and Papadaki 2021; Venter et al. 2020). This reinforced the recognition that ecological infrastructure is not only environmental but also cultural and social.

The *Østerå* project was also conceived according to an advanced ecological vision inspired by the principles of rewilding, which advocates the restoration of environmental processes by reducing anthropogenic intervention and enhancing the self-regenerative capacity of ecosystems (Carver et al. 2021; Massenberg, Schiller, and Schröter-Schlaack 2023; Perino et al. 2019).

Østerå River

The *Østerå* River, historically also known as *Kjærs Molleå*, is a watercourse located in Northern Jutland. Its source is located northeast of *Stovring*, and its mouth opens out into the Limfjord, following a trajectory of approximately 15 kilometres. During the Viking Age, the river's navigability, ensured by its depth and width, rendered it a strategic infrastructural element for the settlement and development of the river port that would later become Aalborg. Originally, the river flowed east of the city; during the Middle Ages, the *Algade* dam was breached, and the *Østerå* was channelled through the city along what later became *Østerågade*. The course of the river formed a natural defensive barrier at its confluence with the Limfjord, protecting *Aalborghus* Castle in particular.

In pre-industrial times, water from the river was an integral part of the city's metabolic system, as it was used for domestic consumption, mill power, and wastewater disposal. The river supported the urban economy and shaped its spatial structure with mills and workshops clustered along its banks.

Major transformations began with the arrival of the railway in 1869 and the construction of the main station and *Banegårdspladsen* (Station Square), which necessitated the first redirection of the *Østerå*. By 1872, the river had been channelled into an artificial bed through *Kanalbyen* (The Canal District) and *Karolinelund* (Karolinelund Park) and flowed into the *Telgaardshavn* (Telgaard Harbour) basin before reaching the Limfjord (Figure 6.1). Further hydraulic modifications followed in 1942, when the river was entirely culverted and redirected into a system of underground pipelines.

For more than a century, the river remained invisible beneath the city, although it continued to flow underground, out of sight and largely out of mind. Yet, by the early 2000s, new discourses in sustainability planning and environmental design focused attention back on the river as a potential catalyst of urban renewal (Blau, Luz, and Panagopoulos 2018).



Figure 6.1 Aalborg, 1900. *Kort over købstaden* (market town map) drawn by V.F.A. Berggreen (18.3.1833-21.12.1913). ↻

Source: Public domain, via Wikimedia Commons, https://upload.wikimedia.org/wikipedia/commons/f/fc/Aalborg_1900.jpg.

The Daylighting of the Østerå River

The reopening of the Østerå was conceived not only as an environmental restoration effort but also as a structural measure for the integrated management of stormwater (Badami 2023). The intervention aimed to create a greater riverbed capacity so that it could transport more water in relation to increased rainfall and mitigate the effects of sudden flooding (González del Tánago, de Jalón, and Román 2012; Yuan, Dunnett, and Stovin 2017; Yuan et al. 2017; Zhang et al. 2014). Furthermore, the project was expected to help regulate the microclimate, conserve biodiversity, and improve urban quality and collective well-being (Loures et al. 2011).

In 2008, Aalborg Municipality initiated preliminary studies aimed at creating an environmental corridor that would bring the waters of the Østerå back to the surface. Technical studies were developed by an interdisciplinary project group from the municipality in collaboration with SLA (Stig Lennart Andersson Landscape Architects) and Ramboll as consultants, selected following an EU tender. 1 year later, in 2009, in collaboration with the landscape consultancy Metopos By- og Landskabsdesign, a vision document was produced to define the urban, landscape, and environmental criteria for the future reopening of the river (Aalborg Kommune 2009a).

The intervention was situated in a complex and stratified urban context and required a multi-scalar analysis. On the one hand, the river was considered within its catchment area, with attention to environmental and hydrological dynamics. On the other hand, it was analysed in relation to the existing urban fabric with the goal of integrating it into the city's network of public spaces and green infrastructure. This involved complex interdisciplinary work, both by the city administration and the consultants. The design proposal aimed to ensure that the river would not only function as an environmental element but also act as a catalyst for urban development through the regeneration of adjacent neighbourhoods and the creation of new transversal connections between the city centre and peripheral zones (Benedict and McMahon 2006; Meerow and Newell 2017; Pinkham 2000).

The extent and complexity of the intervention area necessitated its subdivision into four distinct project zones, each with specific morphological and functional characteristics, for which Aalborg Municipality developed four local plans between 2010 and 2020. The terminal section of the ecological corridor, where the river meets the Limfjord, was marked by dense urbanisation and the presence of three major redevelopment areas: the waterfront, *Musikkens Hus*, and the former *Nordkraft* power station, all of which were designated to become new urban attractors. The area of the former *Tivoli* amusement park, now known as *Karolinehund*, represented a strategic green lung embedded within a compact built environment. The area corresponding to the former railway yard, known as *Godsbanearæle*, was characterised by significant hydraulic vulnerability due to its location in a low-lying zone frequently subject to flooding. Finally, *Gabriel*, the south-eastern zone, constituted a transitional interface between the urban landscape and the surrounding natural areas.

Aalborg Municipality's territorial planning frameworks outline the prospective extension of the urban ecological corridor to include the *Hjulumagerkvarteret* neighbourhood, which is located immediately east of the *Godsbanearaelet* area.

From an *implementation* perspective, the reopening of the river was phased and adaptive. Publicly owned land and strategic redevelopment sites enabled progressive daylighting. Yet the *Østerå's* reopening also required '*legitimation*'. The municipality carefully curated a public process to reintroduce the river into the consciousness of residents. During the consultation phase, disused areas along the river corridor were opened for temporary public access, which enabled spontaneous uses and spatial experimentation. Planning teams collaborated with schools, artists, and local organisations to generate narratives and imagery that reframed the river as a shared environmental heritage. Exhibitions, visualisations, and participatory design activities helped build momentum and support across different public spheres. This process of discursive and spatial reappropriation meant that the *Østerå* became more than just an infrastructural project. It became a 'symbolic common', which reconnected the citizens with the city's environmental memory and natural systems.

The reopening of the *Østerå* demonstrates that *Just Sustainability* can be materialised through design that is inclusive, adaptive, and environmentally attuned (Agyeman 2013; Jørgensen 2015). The return of the river to the surface not only made a buried waterway visible once more, but it also resurfaced values, relationships, and opportunities, thereby reclaiming the city as a site of ecological imagination and situated transformation.

Østerå Northern Segment: The Waterfront Reconnection

The preliminary phase of daylighting the *Østerå* watercourse, formalised in the local plan 1-4-106 (Aalborg Kommune 2012) and completed in 2018, concentrated on the northernmost segment of the river, between *Musikkens Hus* and the recently redeveloped harbour quarter of *Østre Havn* (Chapter 4).

This initial phase noticeably transformed the local urban landscape and significantly enhanced the spatial quality of the area, contributing to increased land values. These externalities were capitalised on through an innovative public-private partnership model. The agreement was based on a logic of mutual value creation: while the development company Enggaard A/S, which acted as the main contractor for the works, benefited from the enhancement of its real estate assets, the municipality secured co-financing for the environmental restoration (Wejs and Andersen 2016).

The architectural vision, which was developed by the Danish firm Polyform, proposed a linear canal subdivided into differentiated spatial sections, tailored to respond to the contrasting morphological and functional characteristics of the two riverbanks (Polyform 2013). On the eastern bank, the design introduced a gently sloping green embankment that was densely planted with native species, including tall trees, shrubs, and herbaceous vegetation. This arrangement simultaneously fulfilled visual, ecological, and hydrological functions, thereby enhancing biodiversity and supporting natural drainage processes.

In contrast, the western bank of the *Osterå* was initially planned as a vertical prefabricated concrete wall integrated with ledges and niches to host hydrophilic plants and buffered by a strip of vegetation to soften the visual barrier. However, this more elaborate environmental facade was never realised: the executed design comprises a simple vertical quay wall flanked by a planted green area.

The canal's substrate was constructed from unevenly shaped stone blocks of varied elevations to simulate a natural streambed. This design fosters aquatic microhabitats, which provide a hospitable environment for fish and support submerged and floating vegetation. Feeder capacities of the channel were expanded under *Kanalstien* and near *Gørtlervej*, where stormwater from the *Østre Landgrøft* was redirected into the system. Additionally, upstream barriers to aquatic fauna were removed through the construction of an open, gravel-lined stream section near *Gabriel*, which improved water quality and enabled ecological continuity (Aalborg Kommune 2023).

Significant attention was also devoted to designing for human engagement and sensory experience. Terraced seating and ramps were installed to provide direct contact with the water surface, encouraging interaction, recreation, and social use of the public space (Figure 6.2).

The project reintroduces a newly imagined fluvial landscape into Aalborg's urban centre with flowing water, textured stone, and native vegetation, collectively creating a layered, near-natural atmosphere. The ambition of the project transcended functional hydrological remediation: it aspired to produce a multisensory



Figure 6.2 View of the Restored Terminal Section of the Østerå River.◀

(Photo: Alessandra Badami).

and affective environment in which the river performed not only as ecological infrastructure and public space but also as a cultural narrative medium within the city's evolving urban structure.

Karolinelund: The People's Garden

The area now known as *Karolinelund* has undergone a complex sequence of transformations, which reflect evolving urban practices, governance models, and social demands related to public space. Originally owned by Aalborg Municipality, in 1824, the site was designated for the creation of a new green area at the request of officers from the 3rd Infantry Regiment of Jutland, then stationed in the city (Gotfredsen 1996). The chosen site, located near the *Teglårdsbækken* stream to the east of the urban settlement, was largely marshy and required extensive land reclamation. The work was carried out by enlisted soldiers under the supervision of Colonel Louis le Normand de Bretteville, in a context where public gardens were reserved exclusively for officers and their families (Aalborg Kommune 2011).

The original design followed the model of the 19th-century Romantic Garden and featured pavilions for music and leisure, cultivable gardens, and a system of canals surrounding an artificial island. The name *Karolinelund* was given in honour of Crown Princess Caroline, daughter of Frederick VI of Denmark, a figure highly respected within military circles. After Bretteville's death in 1847, the area was partially opened to the public except for the island, and in 1869, it came under full municipal management.

Between 1850 and 1935, *Karolinelund* emerged as a prominent multifunctional space for public events and trade fairs. With the contribution of pharmacist Christian Ludvig Lange, a new pavilion was constructed in front of which the city's oldest fountain – later relocated to Nytorv – was installed, thereby underscoring the park's growing symbolic significance for Aalborg.

During World War I, *Karolinelund* became one of the city's main cultural hubs, hosting open-air concerts and large civic gatherings. The diversion of the *Østerå* River at the end of the 19th century introduced a new canal that ran scenically through *Karolinelund* and *Kanalbyen* until it was buried in 1942, which partially degraded the site's environmental and perceptual quality. In the post-war period, the park underwent a radical functional reconfiguration. In 1947, brothers Carl Bro and Volmer Lind permanently installed the *Tivoli Karolinelund* amusement park, building on a successful travelling fair. Starting with only a few attractions, the park grew into one of the region's major recreational destinations, incorporating rides, restaurants, and a stage for musical events. It operated for nearly 60 years until 2006, when it was sold to fairground operator Steen Torben Pedersen. However, the new management proved unsustainable: shifting public entertainment preferences and the absence of an integrated strategy led to its rapid decline. In 2007, Pedersen sold the park to Aalborg Municipality, which permanently dismantled the amusement facilities in 2011 following two failed public tenders and an assessment of low return on investment (Charmoth Nielsen 2011).

The gradual reconversion of *Karolinelund* into an urban park resulted from strong grassroots advocacy. The area's strategic location – no longer peripheral but adjacent to new cultural hubs such as *Nordkraft* and *Musikkens Hus* – redefined its role within the urban structure. Beginning in autumn 2011, the municipality launched a participatory process and published the *Karolinelund Baggrundsinformation* (Karolinelund Background Information) booklet to encourage public debate about the site's future (Aalborg Kommune 2011). The initiative generated broad civic engagement with over 1,000 contributions collected and led to the immediate reopening of the green space for temporary and experimental uses while a long-term vision was being developed.

Temporary activities were coordinated with the citizens' association *Karolines Venner* (Friends of Caroline), based on a logic of collective care and urban experimentation. Low-impact equipment, such as a skateboard ramp, bowling green, and community gardens, was introduced. Parts of the perimeter wall were demolished to create new entrances, and the remaining sections were made available for graffiti. The former *Påfuglen* (The Peacock) restaurant was repurposed as *Ungekulturhuset Block X* (Block X Youth Culture House), a youth centre dedicated to artistic, cultural, and wellness practices, which featured studios, performance spaces, design labs, entrepreneurial facilities, and a bar area. The park became an important gathering space for subcultural and creative practices. As early as 2016, the *Platform 4* pop-up venue – described as a 'Tourist Bar' hosting music, themed tours, and performances – demonstrated a new, experiential use of *Karolinelund*, which became a meeting point for artists, youth, and visitors.

The Urban Regeneration Plan for Karolinelund

In 2014, the municipality commissioned COBE Architects (internationally operating office based in Copenhagen and Berlin) in collaboration with citizens and technical departments to develop a masterplan for the park's permanent transformation. The project, incorporated into local plan 1-1-124 and approved in 2016 (Aalborg Kommune 2016a) defines *Karolinelund* as a multi-functional urban park centred on the reopening of the *Østerå* River, the integration of educational services – including a 700 m² kindergarten – and the enhancement of the urban landscape as environmental, social, and cultural infrastructure (Figure 6.3).

The kindergarten was the first project to be implemented within the regeneration plan for *Karolinelund*. Designed by the firm Bjerg Arkitektur and inaugurated in 2017, it is an exemplary model of sustainable architecture, achieving platinum-level certification from the DGNB (*Deutsche Gesellschaft für Nachhaltiges Bauen*, German Sustainable Building Council) due to its high energy performance and minimal environmental impact. Constructed entirely from timber and topped with a green roof, the building blends harmoniously into the park's natural landscape. It is an energy-efficient structure powered exclusively by renewable sources of energy and forms part of a broader integrated environmental mitigation strategy. The location of the kindergarten



Figure 6.3 Redevelopment Project for Karolinelund Park.↵

(Source: Aalborg Kommune 2016a).

within the park and in direct contact with the natural environment also serves an educational purpose, guiding early childhood education towards environmental sustainability, ecosystem awareness, and hands-on learning about natural processes.

A key feature of the regeneration project is the daylighting of the *Østerå* River (recently revised through a European call for tenders and with new consultants). The new course of the river flows across *Karolinelund* and provides a hydraulic reconnection to the north that links with *Teglgårds Plads* and *Musikkens Plads*, while to the south it connects with the former railway area of *Godsbanearalet*.

The project forms part of a broader urban climate adaptation strategy that addresses the challenges posed by rising global temperatures and the increasing frequency of extreme weather events. The naturalised hydraulic system, in fact, performs an ecosystem service function by managing excess stormwater: during heavy rainfall, the multi-level riverbed sections prevent flooding in surrounding areas and allow temporary water retention, while maintaining the park's accessibility.

Karolinelund represents a high-participation public project in which citizen consultation and active involvement were foundational to the entire regeneration process. The park was conceived as a multifunctional, flexible, and inclusive space that was designed to meet the needs of a diverse urban community by encouraging spontaneous use and collective appropriation of space. The site includes urban gardens, outdoor sports facilities, play areas, spaces for social and cultural inclusion, and arenas for events, concerts, and performances that are also accessible in the evening and at night. From its early transitional phase, *Karolinelund* demonstrated extraordinary regenerative and attractive capacity, which surpassed that of its previous role as an amusement park. Its daily and evening accessibility has fostered continuous use by a heterogeneous public and intergenerational and intercultural interaction. The urban gardens have been highly successful: demand has exceeded supply, thereby prompting the municipality to establish a waiting list for plots, which are managed collectively and often serve as informal social spaces for sharing produce and holding spontaneous gatherings. The park has thus become a relational environment which can host diverse, often unplanned, functions and practices, so that it embodies a kind of 'alternative urban culture' of collective space usage grounded in self-management, shared care, and social innovation.

The regeneration of *Karolinelund*, entirely promoted and funded by the Municipality of Aalborg, was not driven by speculative logic but by a strong political and institutional commitment to environmental transition and urban quality.

Godsbanearalet

The area known as *Godsbanearalet*, which was formerly used for freight train parking and loading/unloading operations, is a flat site located southeast of Aalborg's historic centre along the eastern branch of the *Østerå* River. At the end of the 19th century, the area underwent major transformations: the land was levelled, and the river rerouted to enable the establishment of the freight terminal (Werk 2022). This intervention supported the growth of an industrial district that developed along both sides of the railway infrastructure.

With the decline of industrial activities in the 1990s, freight rail traffic gradually decreased and then disappeared altogether, which was followed by the closure or relocation of the businesses that were operating there. The area – stripped of its original functions – became a vast, flat expanse of around 23,000 m², which was marked by the presence of railway tracks, loading cranes, signal masts, and distribution tanks (Aalborg Kommune 2021).

During the period of abandonment, the area was colonised by an unexpectedly rich and diverse flora. This spontaneous vegetation, which was of considerable ecological interest, is attributed to the dispersal of seeds carried by railway waggons travelling across European rail networks.

The site had high regeneration potential, both due to its proximity to the historic centre and its strategic role in linking peri-urban natural areas with the urban park of *Karolinelund*. Following the cessation of rail activities, ownership of the area was divided between Aalborg Municipality, the real estate company DSB (*Danske Statsbaner*) Ejendomsudvikling A/S, the national rail infrastructure agency Banedanmark, and various private landowners.

The Climate Adaptation Plan of Godsbanearialet

As a preliminary step in drafting a redevelopment plan, the municipality initiated a public debate aimed at defining the transformation of the western part of the area, i.e., the first part of the development project identified as *City Campus*. In preparation for the local plan, a design competition was launched involving four architectural studios. The winning proposal, developed by Polyform, served as the foundation for local plan 1-1-110, which was officially approved in 2010 (Aalborg Kommune 2010a). In parallel with the statutory plan, a quality programme was drafted. Although non-binding, this document served as a design guideline to shape the area's urban and architectural identity.

A critical turning point in the area's recent history was the 2011 cloudburst, which caused extensive damage to the city and sparked a deep rethink of stormwater management. The municipality has long been working to implement a separate water disposal system to replace the current sewer infrastructure that channels all wastewater flows, including stormwater, greywater, and blackwater, through a single underground system.

Situated in one of the city's flood-prone zones, the former freight yard was selected for an innovative design solution: stormwater management was integrated into the urban surface through *Rainwater Harvesting and Management* (RWHM) systems, which promote evaporation, delay runoff, and allow the reuse of rainwater.

A transdisciplinary team, which had expertise in urbanism, architecture, landscape design, botany, and hydraulics (Polyform, Niras, Cenergia), developed a project covering around 30 hectares, doubling the permeable surface area from seven to nearly 15 hectares, 12 of which were designated as an urban park.

This intervention represents one of Denmark's first ecological districts explicitly designed for climate adaptation. The climate adaptation strategy

involved an integrated RWHM system that managed rainwater both at the point of contact and along its path, which regulated the speed and direction of runoff to minimise risk. Measures such as green roofs and rain gardens enhanced evaporation and delayed runoff, thereby easing pressure on the sewer network during intense weather events (Wejs and Andersen 2016).

The site was divided into two main zones: the *City Campus* to the north with residential buildings, commercial spaces, services, and student housing; and *Åparken*, the rail park, conceived as a multifunctional green space for recreation, sports, and leisure.

In the *City Campus*, stormwater management has been designed in an integrated and holistic manner with respect to the built environment and urban space. Buildings feature green roofs that contribute to slowing runoff; permeable surfaces have been created using draining soils and shaped with appropriate slopes. A system of channels, vegetated rain gardens, and semi-permeable surfaced parking areas delays water arrival to the collection system, thereby mitigating the risk of urban flooding. To protect the buildings, the ground floor was raised 35 centimetres above the overflow level expected for the park. Along the building perimeters, stormwater collection grates have been installed, which convey water into the park's drainage system. This integrated stormwater management system confers high resilience to the district against intense meteorological events, thereby safeguarding people's safety and limiting damage to buildings.

Conversely, the lower areas of *Åparken* – formerly occupied by railway tracks – were repurposed as non-buildable spaces such as lawns, sports fields, playgrounds, and a linear park. The latter was modelled as a river valley with a double-profile cross-section designed to accommodate large volumes of water during extreme rainfall. Through gentle depressions, these zones act as temporary reservoirs that collect and naturally purify water, retaining it for 24–36 hours and facilitating emergency flood management.

In cases of exceptionally heavy rain, the rain beds are complemented by overflow channels that direct excess water into underground retention basins, designed as collection pools. If these basins reach capacity, the water is allowed to flood the park in a controlled manner, thus increasing the available containment volume. Finally, a system of underground overflow channels handles exceptional flood flows, thereby safeguarding urban infrastructure from damage (Andersen 2016) (Figure 6.4).

In the project, flood-prone areas, typically marginalised and located outside urban settlements, are integrated into the heart of the new district and equipped for sports, leisure, and relaxation activities. This design choice pursues not only the enhancement of green areas within urban fabrics but also an educational and awareness-raising function regarding climate change phenomena. Residents of all age groups acquire an understanding of the crucial role these spaces play in the neighbourhood's resilience to extreme weather events, recognising their contribution to protecting homes from flood risks and the temporary loss of accessibility to green spaces following intense rainfall, which is followed by a rapid return to normality.

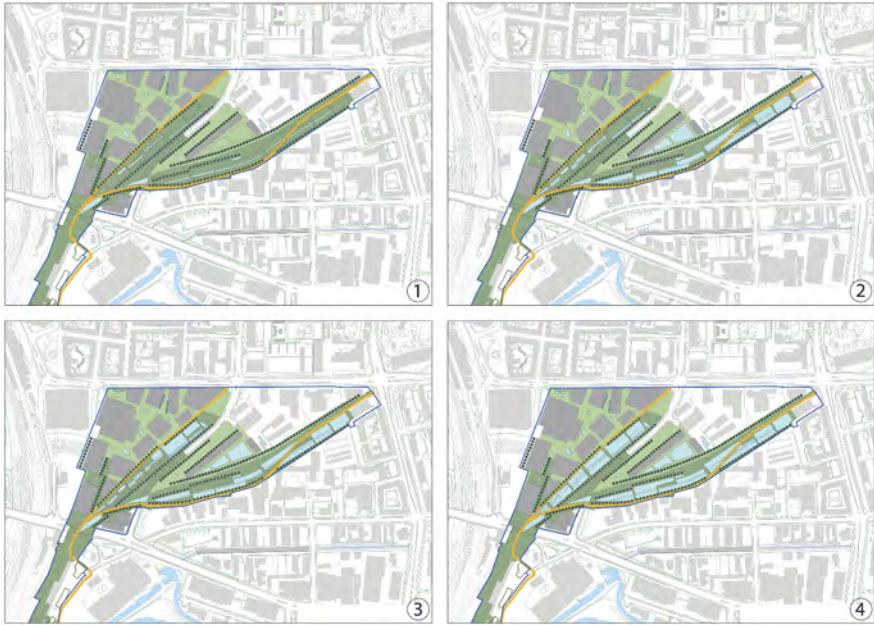


Figure 6.4 Flood Management Scheme for the Godsbanearaalet Sector. ↵

(Graphic design: Alessandra Badami. Source: Danish Ministry of the Environment 2012)

In the flood management scheme for the Godsbanearaalet sector, both urban spaces and park areas serve as a rainwater collection system through retention basins connected by channels. Depending on the volume of rainfall, these basins fill up following a pre-defined sequence, which is structured as follows: Initial phase (1): the basins located in the parking areas within the urban fabric, as well as the naturalised river course that passes through the park, are the first to fill up. Intermediate phase (2): as the water level rises, the connecting channels and adjacent areas along the river corridor start to fill up. Overflow phase (3): a further increase in water volume is managed by channelling it to sports fields and playgrounds, which are equipped with permeable soils to facilitate natural infiltration and temporary accumulation. Extreme Event Phase (4): In the event of extreme weather conditions, which are estimated to occur once or twice every 10 years, all areas within the park act as collective flood retention zones that temporarily hold back excess water to protect surrounding urban infrastructure.

In addition to climate adaptation and environmental rehabilitation objectives, the project pursued the preservation of the site's historical memory (Aalborg Kommune 2021). The executive design, developed by Werk studio, retained some residual elements of the railway landscape, which were integrated into the urban furniture with renewed functions (Werk 2022). Some sections of the railway track have been reused as components of *pocket gardens* that function as rain gardens, which interrupt the continuity of impermeable pavements (Figure 6.5). Laid on free-draining soils, the tracks serve as separators for vegetated beds and as supports for benches made from wooden railway sleepers. During heavy rainfall, the beds temporarily flood, collecting and slowly draining stormwater towards the river.



Figure 6.5 Water Retention Basins in Godsbanearealet. ㄱ

(Photo: Alessandra Badami).

The vegetation design enhances the distinctive features of the local ecosystem and recognises the rich biodiversity connected with the seeds that have historically been transported by freight trains. This spontaneous vegetation, resilient to local climatic conditions, requires minimal irrigation or maintenance. Native plant species have been utilised as urban landscaping elements, thus ensuring landscape continuity along the entire river course, from the natural zone to the urban area.

The transformation plan for *Godsbanearealet* fully meets the objectives set by the municipal water management plan. The municipality has already started a project to separate rainwater collection systems from wastewater and greywater systems, which it intends to complete for the entire municipality by 2065. The reopening of the *Østerå* River, along with other surrounding areas such as *Kærby*, will form an integral part of the urban stormwater management system and will replace the existing retention basins. The collection and disposal capacity provided by the restored river basin will render expansion of the sewage system unnecessary, resulting in cost savings for the sewage company *Kloak*, which will collaborate with the municipality to co-finance the works.

Gabriel: Ecological Connectivity at the Edge of the Compact City

The system of urban parks developing along the new *Østerå* River corridor culminates in *Gabriel*, which is situated at the southern boundary of Aalborg's compact urban core. This area functions as a transitional zone between the



Figure 6.6 The Østerå River Seen from the Gabriel Sector. ㄢ

(Photo: Alessandra Badami).

consolidated city and the peri-urban landscape of *Østerådal* and integrates natural, cultural, and industrial elements into a unique environmental ensemble (Figure 6.6).

Historically, the *Gabriel* area has long been shaped by its relationship to water. Since the Middle Ages, mills have harnessed the kinetic energy of the *Østerå* River, while from the mid-19th century, industries increasingly relied on the river for hydropower and production processes.

Gabriel's naturalistic and heritage-rich character inspired the proposal to conserve and revitalise the existing open-air watercourse, along with the ecological restoration of the area's small lakes and wetlands. The strategic vision envisaged the *Gabriel* as a narrative and pedagogical space, a place where the multiple historical and contemporary roles of water in Aalborg could be interpreted and made visible. The area would also serve as a destination within a network of nature trails that extend into *Østerådal*. This positioning of the *Gabriel* as a gateway and terminus of a green corridor reinforces its potential role in supporting active mobility, environmental education, and cultural tourism.

Eternitten: Regenerating Industrial Land through Ecological Urbanism

The district of *Eternitten*, located approximately 1.5 km southeast of Aalborg's historic city centre, represents one of the most ambitious urban regeneration projects in the city's post-industrial transformation. The area, named after the

Dansk Eternit Fabrik, a major asbestos-cement factory established in 1927, has historically been associated with Aalborg's industrial growth and its extractive economic model. Its location adjacent to a gypsum quarry and its high contamination with hazardous materials rendered it a paradigmatic site of environmental degradation.

At the time of its decommissioning, the site was characterised by severe soil contamination and disrupted terrain marked by steep gradients and barren zones. However, its proximity to the city centre and major infrastructure positioned it strategically for redevelopment. Aalborg Municipality responded with an integrated vision that framed the area not merely as a derelict zone to be repaired but as a platform for experimenting with new forms of ecological urbanism, functional hybridity, and inclusive design (Badami 2020).

From the outset, the project was shaped by a participatory planning ethos. Public meetings held in 2005 invited residents to contribute ideas and preferences regarding building density, land use, and heritage preservation (Aunsborg and Sørensen 2008). The resulting masterplan, developed in 2006 through collaboration between Aalborg Municipality, FLS Real Estate, C.F. Møller Architects, and COWI (abbreviation of the names of the two senior partners of the international consulting group: Christen Ostenfeld and Wriberg Jønson), reflected these inputs and laid the groundwork for a flexible, modular, and phased development strategy (Aalborg Kommune 2006).

Given the considerable size of the district (approximately 363,000 m²), the regeneration process was conceived in successive phases to ensure adaptability in response to shifting socio-economic conditions and emerging urban needs. Rather than adopting a single binding implementation plan, the approach relied on a modular planning framework articulated into three sub-zones, each governed by specific urban planning instruments, which were adopted between 2009 and 2015. The first sub-zone to be redeveloped was the eastern portion of the site, which was a former quarry. This area was already free of buildings – except for a sludge treatment facility – and featured a terraced terrain suitable for construction. Redevelopment of the second sub-zone, located in the north-eastern sector and bounded by the main roads *Sønderbro* and *Østre Allé*, started in 2010 with the demolition of industrial pavilions. The transformation of the third sub-zone, situated in the south-western area, only began once the complete demolition of the remaining facilities had been completed, which was in 2015. In all cases, environmental restoration was a prerequisite to ensure that ecological risks had been addressed before new uses were introduced.

The Eastern Sector: Transforming a Disused Quarry

The first sub-area to undergo transformation was the eastern portion of *Eternitten*, formerly used as a quarry and institutionalised by local plan 4-2-105 (Aalborg Kommune 2009b). After the cessation of mining activities, the steep limestone terrain of the former quarry was gradually recolonised by sparse spontaneous vegetation. The plan opted to preserve these ecological features,

integrating them with newly introduced green areas composed of infill soils intended to support denser vegetation, including meadows, shrubs, and native tree species.

The area was subdivided into three functional zones. The first, mainly residential, develops along the terraces of the quarry with an arrangement of terraced houses that vary in height, ranging from one to three floors. The buildings follow a fan-shaped layout within a landscaped system structured around pedestrian paths and resident-only roads. Some blocks are located along the sloping plateau adjacent to *Sohngårdsholmsvej*, which enjoys panoramic views, while others lie within the depression left by past extraction and benefit from wind protection and a favourable microclimate. Rather than filling in the quarry, the project enhanced its artificial morphology, recognising it as a resource for defining new ecological habitats favourable to urban settlement.

The second zone, in the north-western triangular section, is dedicated to student housing, young people, and young families. The residential complex, *Henius House* – named after Isidor Henius, who was the owner of the former factory – was designed by C. F. Møller Architects and was built between 2011 and 2013. It comprises 285 units over 16,000 m², including 12,000 m² of youth housing and 4,000 m² of single-family dwellings. Here, the architectural language more overtly recalls the site's industrial past using raw materials and sharp geometries. The use of exposed concrete maintains continuity with the site's industrial imagery, brightened by vivid colour accents highlighting entrances and communal spaces.

Henius House offers a contemporary interpretation of social housing that emphasises the communal dimension of urban life. Shared kitchens, multipurpose rooms, gyms, internet cafés, and workshops are complemented by outdoor terraces, solariums, play areas, fitness zones, and a rooftop basketball court. The flexible configuration of the interior spaces allows for easy reorganisation, making it possible, for instance, to convert residential units originally designed for students into apartments suitable for families or shared living arrangements.

The third zone, occupying the southernmost and most natural part of the site, hosts the neighbourhood centre and various sports and recreational facilities. These are arranged on a series of plateaus at different elevations, which creates open, panoramic spaces along the site's southern edge.

Overall, the project reinterprets the morphological constraints of the former quarry as design opportunities (COWI n.d.). The intervention not only reconnected the urban fabric but also activated new landscape and ecological values, thereby contributing to the development of a contemporary neighbourhood that combines spatial quality, environmental sustainability, and historical memory.

The North-Western Sector: Eternitten Village 21

Redevelopment of the second sub-area in the north-western sector began in 2010 following the demolition of the factory's main pavilions (Kjaer & Richter

n.d.). This transformation, promoted through the *Village 21* quality programme (COWI 2009), aimed to establish a contemporary urban ecosystem integrating residential, commercial, and creative activities. The aim was to recreate the relational and functional qualities of a self-sufficient village, fostering proximity-based services, social interaction, and productive synergies among residents, workers, and visitors.

Rebranded as *Eternittens Videnby* (Eternitten's Knowledge City), the district was planned to attract actors from the knowledge, culture, and communication sectors. The spatial configuration embodies an integrated urban vision, characterised by adaptable building typologies, high-quality public realms, and a multimodal mobility system that enhances permeability, safety, and connectivity, fostering seamless transitions between work, leisure, and everyday life (Aalborg Kommune 2010b). While the area was re-allocated to functions no longer tied to heavy industry, the project sought to preserve the site's historical past as one of the most significant industrial production hubs in Aalborg. Accordingly, the design strategy prioritised the reuse and repurposing of several pre-existing industrial artefacts, transforming them into iconic elements of the new urban landscape. These include the former gatehouse pavilion, several silos, the brick building known as *Gavlhusene*, and a 1963 production hall, which were retained as tangible signs of the site's historical stratification.

Artistic interventions reinforced the site's identity and past: Søren Elgaard's mural depicting factory processes, Guido Van Helten's tribute to asbestos victims (Figure 6.7), and Jonas Pihl's 'Transitions', which symbolised the city's shift from industrialism to innovation. Another silo was integrated into a new office building, with its raw concrete juxtaposed with glazed façades to underscore its testimonial value.

The *Gavlhusene* complex has been converted into 29 dwellings by Luplau & Poulsen Arkitekter while maintaining its stylistic integrity and adding new architectural volumes on the upper floors, which has contributed to the formation of a hybrid urban landscape that intertwines memory and innovation. The 1963 production building was repurposed into *Game Streetmekka Aalborg*, an indoor-outdoor urban culture hub designed by JAJA ('yes, yes' in German) Architects. Embracing the raw aesthetic of the industrial shell, the centre hosts parkour, dance, recording studios, and street art and embodies a hybrid approach to spatial reuse and civic programming (JAJA Architects n.d.).

The South-Western Sector: The Climatic Boulevard

The final phase of regeneration focused on the south-western portion of the district, which was activated following the demolition of the remaining industrial structures in 2015. Defined by local plan 4-2-111 (Aalborg Kommune 2015a), this sub-area, which is divided into two functional sub-zones, was conceptualised as a health-orientated, environmentally sustainable, and socially vibrant neighbourhood. The northern sub-zone is primarily designated for residential buildings along the western edge, while the eastern strip is reserved for



Figure 6.7 Silo Decorated with a Mural by Guido Van Helten in the Eternitten District. ↻
(Photo: Alessandra Badami).

offices, services, and commercial activities. The southern sub-zone, by contrast, is conceived as a large public urban park, equipped with recreational, sports, and leisure facilities to serve the neighbourhood and the broader urban area.

The plan promotes an integrated approach to urban regeneration that combines the selective reuse of the disused industrial heritage with the enhancement

of the existing landscape matrix. In this regard, part of the former finished goods warehouse will be repurposed as a parking facility for residents, leveraging the existing loading ramps for functional adaptation.

The project is marked by a strong green and blue imprint that permeates the entire neighbourhood. In addition to the provision of public green spaces in the southern sub-zone, the mixed-use and residential areas in the north are also designed to feature buildings immersed in greenery.

A central element of the landscape structure is the daylighting of a previously culverted canal, which forms the backbone of the so-called ‘climatic boulevard’: a multifunctional environmental device aimed at rebalancing ecosystems and sustainably managing stormwater. The climatic boulevard is designed as a natural open-air channel that conveys and drains rainwater through a district-scale integrated RWHM system. This system comprises a network of channels, rain gardens, retention basins, and bioswales, intended to mitigate hydraulic risk, support aquifer recharge, and strengthen the climate resilience of the new settlement.

Budolfi Plads: The Rewilding Approach in Urban Design

In addition to the case of the *Østerå* River, the rewilding approach has also been applied in the regeneration of *Budolfi Plads*, where the introduction of a segment of wild nature within the historic urban fabric has had a particularly significant impact on the environmental and social quality of the area (Badami 2023). This practice, originating and developed in the context of ecological conservation, aims to restore and enhance dynamic natural ecosystems by reducing anthropogenic pressure and recovering complex ecological functions.

The concept of rewilding has its roots in 1980s North America (Carver et al. 2021), where it was initially defined as the ‘recovery of wild nature’ (Noss 1985). Since then, it has gained increasing global traction (Johns 2019). Originally focused on the conservation and restoration of native biodiversity, rewilding has been applied to create extensive, interconnected ecological networks of nature reserves in which keystone species could maintain their trophic interactions autonomously (Power et al. 1996), thereby promoting resilient and self-sustaining ecosystems (Soulé and Noss 1998).

Although initially associated with rural and wilderness contexts, rewilding has recently attracted interest within urban environments in response to the need to regenerate green spaces and enhance biodiversity in cities. The urban rewilding approach constitutes an innovative design process that can integrate natural habitats and infrastructural elements within anthropised contexts, valorising the use of native plant species to improve environmental quality and residents’ well-being (Mills et al. 2017; Owens and Wolch 2019). This form of urban rewilding differs from the rural approach in that it requires careful, multidisciplinary management and design involving urban planners, landscape architects, botanists, environmental engineers, and hydrologists to ensure the functional and social sustainability of the regenerated spaces.

A crucial factor for the effectiveness and sustainability of urban rewilding lies in the positive perception and social acceptance of local communities. Humans tend to attribute value and appreciation to landscapes that are familiar from childhood, including the conservation of cultural and traditional landscapes that convey a sense of identity and belonging (Drenthen 2018; Jepson 2016; Linnell et al. 2015; Plieninger, Höchtl, and Spek 2006). Participatory and inclusive approaches that actively involve communities in defining and managing regenerated spaces, therefore, represent an indispensable condition for the success of rewilding projects (Mericskai 2020). The experience of *Budolfi Plads* demonstrates that the controlled and shared introduction of wild nature elements within a historic centre may foster not only the ecological regeneration of urban areas but also the construction of new cultural and social meanings linked to nature in the city. The experience of *Budolfi Plads* demonstrates that the controlled and shared introduction of wild nature elements within a historic centre may foster not only the ecological regeneration of urban areas but also the construction of new cultural and social meanings linked to nature in the city. This approach, currently expanding rapidly at the international level, represents a promising pathway to reconcile environmental sustainability, urban resilience, and social inclusion in the contemporary urban landscape.

Historical Context and Transformation of Rudolfi Plads

Budolfi Plads is situated at the heart of Aalborg. Archaeological excavations conducted during the preliminary phases of the square's transformation, between 2013 and 2015, confirmed human settlement dating back to the Viking Age (approx. 11th century AD). During the Middle Ages, the city developed along the principal east-west axis represented by *Algade* Street, along which, around 1050 AD, a wooden church dedicated to Saint Rudolf was erected (Teknik og Miljøforvaltningen 2009). In the 12th century, this original structure was replaced by a granite building, which was then replaced by the current edifice, the construction of which commenced in approx. 1400 and was completed by 1525 at the latest. In 1554, the church assumed the status of a cathedral and became a prominent urban landmark. Over subsequent centuries, it underwent expansions and renovations that blended Gothic and Baroque elements, leading to its present appearance (Vasile, 2021).

The area surrounding the cathedral, historically known as *Skolegadekvarteret* due to the presence of a school, is among Aalborg's oldest quarters. In the 15th century, this district hosted numerous manufacturing activities, which conferred it an industrial character. However, it was also known as the location for entertainment venues such as pubs and brothels, which contributed to its reputation as a disreputable neighbourhood (Teknik og Miljøforvaltningen 2009). Subsequent urban expansion resulted in increasing population density and a street layout characterised by narrow, winding thoroughfares.

During the 1930s, *Skolegadekvarteret*, then degraded and perceived as a slum, underwent municipal clearance efforts. Between 1936 and 1939, 43 buildings

were demolished, with the freed land acquired by the municipality; in addition, the width of streets was expanded to improve circulation. The district was renamed *Vingårdsgade* as a symbolic act of renewal and repudiation of its prior negative reputation, and a public square intended for markets and events was established around Saint Budolfi's Church (Teknik og Miljøforvaltningen 2009).

In the post-war period, modernist urban planning significantly influenced Aalborg's historic centre with the demolition of several historic streets to accommodate modern infrastructure such as roads, parking facilities, and department stores. In the 1960s, Budolfi Square was leased by the municipality to private operators for the construction of offices, shops, and a multi-storey car park with an associated petrol station, covering approximately 4,800 m² under a 50-year lease, which expired in 2012.

The buildings erected during this period, including Denmark's first *Kvickly* supermarket, the *Budolfihus* office building in a functionalist/modernist style, and two office blocks – *Algade 53*, housing Danske Bank, and *Vingårdshus* – exemplify the urban modernisation of the area, which has altered the historical identity of the site.

By the end of the 20th century, the square had assumed a dilapidated appearance. The 'Comprehensive Plan for Aalborg Midtby' of 2004 envisaged the redevelopment of the areas surrounding Saint Budolfi's Church: the directives of the plan included the creation of an urban garden at the eastern end of the church and the reorganisation of the existing car park with the aim of conferring the appropriate character of a churchyard upon the area (Teknik og Miljøforvaltningen 2009).

The Public Debate on Urban Regeneration

In anticipation of the expiration of the lease in 2012, the municipality initiated a public consultation in 2010 to discuss potential future uses of the area. This preliminary discourse resulted in the formulation of four alternative scenarios, all envisaging the retention of the three buildings erected in the 1960s alongside the reconfiguration of the car park. The proposals ranged from the introduction of new green spaces to the construction of new architectural volumes with the objective of enhancing the public space.

On 1st January 2015, the Municipality of Aalborg acquired the *Budolfihus* building from Nordea Bank. Its location, between the churchyard of Saint Budolfi's Church and the extensive car park area of *Budolfi Plads*, rendered the change of ownership an opportunity to redefine the urban space. The possibility of demolishing the building was considered to restore continuity between Budolfi Square and the Cathedral. Consequently, the municipality initiated a second public consultation, this time based on a preliminary proposal developed in collaboration with the landscape architecture firm SLA and the real estate developers Sadolin & Albæk (Aalborg Kommune 2015b).

Based on the preliminary debate and the planning proposal, the municipality approved local plan 1-1-117 (Aalborg Kommune 2017), which outlines the vision and strategy for the area, which focuses on the creation of a new green

urban space for the benefit of citizens. The plan envisages a mix of residential and commercial activities, including a new supermarket and a parking facility for approximately 200 vehicles to be constructed under the square, covering a total of 10,000 m².

Wilderness Reclaims the City

The proposal for the square's redevelopment received widespread support and led to the announcement of a new tender for the detailed design phase. The contract was awarded to a consortium comprising Nordic Construction Company (NCC) Danmark A/S, Udviklingsselskabet Viben A/S, and Rema Butiksudvikling A/S, with consultants including Kjaer & Richter A/S, byMUNCH (urban and landscape design), and Balslev Consulting Engineers A/S (Aalborg Kommune 2017).

The main challenge was to reconnect the square to the cathedral, which was hindered by the *Budolfihus* building. *Budolfihus* was constructed in 1962 in a functionalist/modernist style, designed by architects Torben Stokholm and Christian Pedersen. The National Association for Building Culture and Landscape regarded *Budolfihus* as representative of a significant era in the city's architectural and cultural history. Despite the National Association's recommendation to the Municipality of Aalborg to preserve *Budolfihus* as part of the post-war architectural heritage, the ensuing debate favoured the opportunity to demolish the building to establish a direct visual and spatial connection between Saint Budolfi's Church and the square (Aalborg Kommune 2016b).

The project's implementation was hampered by the discovery of significant archaeological remains dating back to the Viking and mediaeval periods, which made the construction of an underground car park unfeasible. However, the need to allocate the area for parking led to the decision to place the facility at ground level and to cover it with a new elevated platform designed entirely for pedestrian use.

These conditions determined the shape of the final project: the ensemble, which is focused on the enhancement of public space and urban greenery, has the form of a gentle hill containing the parking lot and whose surface is covered with lush vegetation through which paths wind to the top. The composition of plants is a mix of conifers, deciduous trees, grasses, ground cover plants, and flowers, which evokes the experience of a forest and introduces a fragment of the Danish natural landscape into the historical heart of the city.

The expansive upper plaza is paved with large white concrete slabs interspersed with planting beds. The slabs feature undulating grooves inspired by traces left by microorganisms in gypsum deposits, which also have an anti-slip function. The pavement's colour palette references both the hue of Saint Budolfi Cathedral and Portland white cement, one of Aalborg's most significant industrial products and a locally renowned, internationally exported symbol.

Rainwater runoff from the pavement is collected and channelled into an underground cistern for use in irrigation during dry periods. The surrounding buildings also contribute to local stormwater management and climate change mitigation through the implementation of green roofs and façades.

The urban furniture within the square is designed to offer diverse and flexible opportunities for rest and relaxation: *chaise longues*, benches, and café and restaurant terraces are strategically distributed to maximise views of the cathedral and adjacent historic buildings. The new buildings defining the square's perimeter share a harmonious architectural language and are constructed from red brick, referencing the traditional materials of the historic city centre residences. At street level, the premises accommodate public functions such as restaurants, cafés, art galleries, and shops. Their open (transparent) and, to some extent, active (openable) façades facilitate interaction with the urban space, thereby generating a synergy between the square and its surrounding buildings. The upper floors are reserved for residential use and feature balconies or rooftop terraces, thus providing private outdoor spaces.

The regeneration project of *Budolfi Plads*, initiated in March 2017 and completed in November 2019, aimed to increase green spaces within the historic centre of Aalborg through the adoption of Nature-Based Solutions, inspired by the principles of rewilding. This intervention represents a paradigmatic case that demonstrates that the revitalisation of historic contexts necessitates a delicate balance between heritage conservation and innovative design. In this instance, a radical transformation of the square's traditional image was undertaken by introducing elements of wild nature into the urban core, thereby fostering a novel dialogue between history and nature (Figure 6.8).



Figure 6.8 Budolfi Plads. ↗

(Photo: Alessandra Badami).

The design process was accompanied by an extensive and multifaceted public consultation, promoted by the Aalborg Municipality, which actively engaged citizens, landscape architects, and environmental engineers to elicit community perspectives and expectations regarding the transformation of the city's most emblematic historic square. This participatory approach was fundamental to the project's legitimacy and successful implementation.

Rethinking Urban Greenery

The regeneration of *Budolfi Plads* represents an innovative contribution to urban design within a historic context, which is distinguished by its original conception of urban greenery. The innovative value of the project lies in directing the design towards the ecosystemic values of nature, thereby transcending the traditional approach that interprets urban greenery merely as a decorative or aesthetic element.

For the selection of plant species, the principle of interspecific collaboration was adopted so that plants were chosen based on their capacity to adapt, survive, reproduce, and coexist synergistically within the local climatic conditions and the urban environment.

The project makes a significant contribution to the enhancement of the urban environment and biodiversity. The selected plant species were carefully chosen to increase biodiversity, introduce spatial richness, and establish a new green volume within a densely populated area of the city.

The substantial biomass introduced into the area through green roofs, planted beds, and trees has numerous positive effects on the local microclimate. Vegetation absorbs CO₂, captures airborne pollutants, and reduces sound resonance between buildings. It provides shade during the summer months, thereby mitigating the urban heat island effect, and contributes to improved stormwater management by reducing runoff and enhancing evaporation.

With the transformation of *Budolfi Plads*, a new green identity has been established in the heart of Aalborg. The project creates accessible meeting spaces for people of all ages, thus fostering social cohesion. In recognition of its harmonious integration of wilderness and architecture within the historic city centre, the project was awarded the Aalborg Municipality Architecture Award in 2020.

Conclusion: Urban Regeneration as Ecosystemic Practice

In the projects analysed in this chapter, green infrastructure strategies and ecological urban design practices have been articulated through a plurality of localised interventions, participatory processes, complex institutional configurations, environmental engineering solutions, and hybrid forms of public–private partnership.

The *Østerå* River, once buried underground, has been daylighted and reimagined as the backbone of a new urban ecological corridor, whose course traverses

Figure 6.9 Urban Sustainability Compass on Urban Ecology Projects in Aalborg. ↺
(Concept and design: Enza Lissandrello; visual elaboration: Alessandra Badami).

Legitimation is evident in the strategies employed to build public support and institutional alignment. Participatory processes at *Eternitten*, *Karolinelund* and *Budolfi Plads*, along with the valorisation of heritage in *Gabriel* and *Godsbanearaelet*, have been key to aligning political, cultural and community narratives around the projects.

Implementation involves the material realisation of plans through local planning frameworks, infrastructure investment and public–private partnerships. Across all six cases, implementation has been phased over several years and has been characterised by incremental delivery and adaptive governance mechanisms.

The logic of *Experimentation* highlights the innovative aspects of the projects, including multifunctional urban spaces, temporary uses and flexible zoning. In particular, *Godsbanearaelet* and *Karolinelund* have operated as urban laboratories where spontaneous uses and climate-sensitive design were tested and integrated.

The analysis of these six cases also reveals a process that involves the co-evolution of ecological rationalities, planning practices, institutional configurations and territorial narratives. This process unfolds along the four interrelated theoretical axes of the *Urban Sustainability Compass*. Each perspective helps to reveal multi-scalar dynamics and provides a critical interpretation of Aalborg's urban transformations, capturing the complexity and contingency of local regeneration practices (Table 6.1).

From an *Urban Political Ecology* perspective, the six projects in Aalborg contribute to climate adaptation and ecological transition not as functional responses to environmental challenges but as co-produced practices that are shaped by political negotiations and uneven ecologies. In these settings, regeneration acquires a dual meaning: as remediation of compromised environments and as a field for new forms of territorial justice and ecological redistribution.

In the context of Aalborg, *Just Sustainability* proves particularly valuable in interpreting the dynamics of post-industrial regeneration, where socio-spatial inequalities intersect with the pressing demands of climate adaptation. The cases of *Karolinelund*, *Gabriel*, *Eternitten* and *Budolfi Plads* provide empirical evidence of the uneven distribution – socially, spatially and politically – of access to green infrastructure, exposure to environmental risks, and the benefits arising from redevelopment.

Phronetic Planning is manifested through incremental and experimental interventions that reconcile strategic vision with adaptive practice. The projects of *Karolinelund*, *Godsbanearaelet* and *Budolfi Plads* illustrate that urban sustainability has not been pursued through pre-defined solutions or rigid regulatory frameworks but through negotiated processes that have leveraged design creativity, institutional learning and pragmatic compromise among divergent actors.

Urban Sustainability Governance, conceived as an ongoing process of coordination, negotiation and collective learning, emerges across these cases as essential for articulating multi-level action in response to the challenges of contemporary territorial complexity.

Table 6.1 The Urban Sustainability Compass of Green Infrastructures and Urban Ecological Design in Aalborg (Elaboration: Enza Lissandrello) ↱

<i>Project/Area</i>	<i>Urgency</i>	<i>Legitimation</i>	<i>Implementation</i>	<i>Experimentation</i>	<i>Dominant Theoretical Lens</i>	<i>Narrative</i>
Østerå (Stream Opening)	Urban flooding risks, degraded stream corridor	Ecological restoration and public value of blue-green infrastructure	Phased stream daylighting, integration in urban renewal schemes	Nature-Based Solutions, experimental water design	Urban Political Ecology; Environmental Ethics	Reconnecting city and nature by restoring ecological flows and making blue-green infrastructure visible in everyday urban life.
Karolinelund	Pressure for densification, loss of green space	Civic activism and green space advocacy	Temporary use, participatory park planning, multiple iterations	Cultural programming and citizen-led stewardship	Just Sustainability; Phronetic Planning	A contested park where activism shaped public green space through iterative, participatory processes.
Godsbanearælet	Climate adaptation needs, post-industrial brownfield	Strategic vision for climate resilience and mixed-use urbanity	Flood-resilient planning, adaptive reuse, flexible zoning	Spontaneous biodiversity, bottom-up urban practices	Urban Sustainability Governance	A climate-resilient neighbourhood born from strategic planning and experimental ecological urbanism.
Gabriel District	Industrial downsizing, stormwater management needs	Sustainability discourse aligned with corporate redevelopment	Quality programme, attention to multifunctionality	Combination of private initiative and municipal guidance	Urban Political Ecology; Strategic Planning	A hybrid district where water-sensitive urban design meets environmental redevelopment narratives.
Eternitten	Industrial decline, environmental pollution	Branding Aalborg as a sustainable, modern city	Quality programme, stormwater integration, reuse of industrial elements	Tensions between commercial development and ecological ambitions	Strategic Planning; Urban Political Ecology	From factory to flagship: combining corporate sustainability with climate resilience and urban branding.
Budolfi Plads	Redevelopment of the historic centre	Social involvement	Multifunctional design of public space	Urban Rewilding	Urban Political Ecology; Just Sustainability	Insert a fragment of the Danish Forest in the heart of the historic city centre.

The cases analysed reveal that such governance is frequently confronted with fragmentation: overlapping institutional mandates, dispersed responsibilities, unstable funding streams and a lack of unified vision represent structural constraints that hinder the coherence and efficacy of long-term strategies. Nevertheless, in specific contexts – such as *Karolinelund* – the ability of local actors to activate informal networks, forge pragmatic alliances and initiate progressive planning processes has made transformative action possible, even in the absence of a robust normative framework.

References

- Aalborg Kommune. 2006. *Eternitten: Masterplan for Det Tidligere Eternitfabrikksområde*. Aalborg.
- Aalborg Kommune. 2009a. *Åbning Af Østerå. Planlægningsarbejde i Forbindelse Med Nordkraft Og Karolinelundskilen Herunder Visioner for Åbning Af Østerå*. Aalborg.
- Aalborg Kommune. 2009b. *Lokalplan 4-2-105: Boliger m.m., Eternitten, Grønlandskvarteret*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2010a. *Lokalplan 1-1-110: Godsbanearaelet, Aalborg Midtby*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2010b. *Lokalplan 4-2-107: Boliger, Erhverv m.m., Eternitten, Grønlandskvarteret*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2011. *Karolinelund Baggrundsinformation*. Aalborg.
- Aalborg Kommune. 2012. *Lokalplan 1-4-106: Boliger Og Erhverv, Østre Havn, Ø-Gadekvarteret*. Aalborg: Teknik- og Miljøforvaltningen.
- Aalborg Kommune. 2015a. *Lokalplan 4-2-111: Den Sydvestlige Del Af Eternitten Og Vandværksparken, Grønlandskvarteret*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2015b. *Opsamling På Fordebat Af Budolfi Plads*. Aalborg.
- Aalborg Kommune. 2016a. *Lokalplan 1-1-124: Park Og Børnehave, Karolinelund, Aalborg Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2016b. *Lokalplan 1-1-126: Nedrivning Af Budolfihus m. m., Budolfi Plads, Aalborg Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2017. *Lokalplan 1-1-117: Centerområde, Budolfi Plads, Vingårdsgade, Aalborg Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2021. 'Nyt, Grønt Åndehul i Hjertet Af Aalborg'. <https://www.aalborg.dk/nyheder/alle-nyheder/2021/06/%C3%A5parken-forvandler-gammelt-godsbaneterræn-til-unik-naturpark-midt-i-nordjyllands-hovedstad>
- Aalborg Kommune. 2023. 'Projekt: Åbning Af Østerå i Aalborg Midtby'. <https://projekter.aalborg.dk/osterakaj>
- Agyeman, J. 2013. *Introducing Just Sustainabilities: Policy, Planning, and Practice*. London: Zed Books.
- Ahern, J., S. Cilliers, and J. Niemelä. 2014. 'The Concept of Ecosystem Services in Adaptive Urban Planning and Design: A Framework for Supporting Innovation'. *Landscape and Urban Planning* 125:254–59. doi:10.1016/j.landurbplan.2014.01.020
- Alves, A., Z. Vojinovic, Z. Kapelan, A. Sanchez, and B. Gersonius. 2020. 'Exploring Trade-Offs among the Multiple Benefits of Green-Blue-Grey Infrastructure for Urban Flood Mitigation'. *Science of The Total Environment* 703:134980. doi:10.1016/J.SCITOTENV.2019.134980
- Andersen, A. J. 2016. *Byplanlægning i Aalborg Midtby. Fra Gadegennembrud Til Tæt Byudvikling*. Aalborgbogen.
- Anzaldua, G., N. V. Gerner, M. Lago, K. Abhold, M. Hinzmann, S. Beyer, C. Winking, N. Riegels, J. K. Jensen, M. Termes, J. Amorós, K. Wencki, C. Strehl, R. Ugarelli, M. Hasenheit, I. Nafo, M. Hernandez, E. Vilanova, S. Damman, S. Brouwer, J. Rouillard, D. Schwesig, and S. Birk. 2018. 'Getting into the Water with the Ecosystem Services

- Approach: The DESSIN ESS Evaluation Framework'. *Ecosystem Services* 30:318–26. doi:10.1016/j.ecoser.2017.12.004
- Aunsborg, C., and M. T. Sørensen. 2008. 'Planning and Implementation of Urban Regeneration: The Adequacy of the Statutory Toolbox Available to Practice'. in *Integrating Generations: FIG Working Week 2008*. International Federation of Surveyors. Aalborg: Aalborg University.
- Badami, A. 2020. 'Eternitten Village 21: The City of Knowledge. From Industrial Contamination to Social and Cultural Contamination'. pp. 1172–81 in *World Heritage and Contamination*, edited by C. Gambardella. Roma: Gangemi.
- Badami, A. 2023. 'The Rewilding Approach in Urban Design. The Case Study of Budolfi Plads in the Historic Centre of Aalborg (DK)'. pp. 428–38 in *World Heritage and Dwelling on Earth*, edited by C. Gambardella. Roma: Gangemi.
- Beatley, T. 2011. *Biophilic Cities. Integrating Nature into Urban Design and Planning*. Washington, DC: Island Press.
- Bedla, D., and W. Halecki. 2021. 'The Value of River Valleys for Restoring Landscape Features and the Continuity of Urban Ecosystem Functions – A Review'. *Ecological Indicators* 129:107871. doi:10.1016/j.ecolind.2021.107871
- Benedict, M. A., and E. T. McMahon. 2006. *Green Infrastructure. Linking Landscape and Communities*. Washington, DC: Island Press.
- Bertram, C., and K. Rehdanz. 2015. 'The Role of Urban Green Space for Human Well-Being'. *Ecological Economics* 120:139–52. doi:10.1016/j.ecolecon.2015.10.013
- Blau, M., F. Luz, and T. Panagopoulos. 2018. 'Urban River Recovery Inspired by Nature-Based Solutions and Biophilic Design in Albufeira, Portugal'. *Land* 7(4):141. doi:10.3390/land7040141
- Carver, S., I. Convery, S. Hawkins, R. Beyers, A. Eagle, Z. Kun, E. V. Maanen, Y. Cao, M. Fisher, S. Edwards, C. Nelson, G. Gann, S. Shurter, K. Aguilar, A. Andrade, W. Ripple, J. Davis, A. Sinclair, M. Bekoff, R. Noss, D. Foreman, H. Pettersson, M. Root-Bernstein, J. C. Svenning, P. Taylor, S. Wynne-Jones, A. W. Featherstone, C. Fløjgaard, M. Stanley-Price, L. M. Navarro, T. Aykroyd, A. Parfitt, and M. Soulé. 2021. 'Guiding Principles for Rewilding'. *Conservation Biology* 35(6):1882–93. doi:10.1111/cobi.13730
- Charmoth Nielsen, J. 2011. *Det Nye Karolinelund. Aalborgs Mangfoldige Mødested*. Aalborg: Aalborg University.
- Cohen-Shacham, E., G. Walters, C. Janzen, and S. Maginnis. 2016. *Nature-Based Solutions to Address Global Societal Challenges*. Gland: IUCN International Union for Conservation of Nature.
- COWI. 2009. *Village 21 - Fra Eternitfabrik Til Vidensfabrik. Et Moderne Vækstmiljø for Internationalt Orienterede Vidensvirksomheder*. Aalborg: Aalborg Kommune, Teknisk Forvaltning for Søren Enggaard a/s, Ejendoms- og Udviklingsselskab.
- COWI. n.d. *Eternittens Boligområde. En Ny Bydel Vokser Frem Af et Enestående Landskab*. Aalborg: Aalborg Kommune, Teknisk Forvaltning for Søren Enggaard a/s, Ejendoms- og Udviklingsselskab.
- Drenthen, M. 2018. 'Rewilding in Layered Landscapes as a Challenge to Place Identity'. *Environmental Values* 27(4):405–25. doi:10.3197/096327118X15251686827732
- European Commission, Directorate-General for Environment. 2021. *EU Biodiversity Strategy for 2030: Bringing Nature Back into Our Lives*. Luxembourg: Publications Office of the European Union.
- Gerner, A., et al. 2018. 'Ecological Corridor Design and Assessment: Strategies for Biodiversity Integration'. *Ecological Indicators* 88:73–81.
- Ghofrani, Z., V. Sposito, and R. Faggian. 2020. 'Developing an Integrated Approach to Climate Change Adaptation and Flood Risk Management'. *Journal of Environmental Planning and Management* 63(6):1101–20.
- Gómez-Baggethun, E., Å. Gren, D. N. Barton, J. Langemeyer, T. McPhearson, P. O'Farrell, E. Andersson, Z. Hamstead, and P. Kremer. 2013. 'Urban Ecosystem Services'. *Urbanization, Biodiversity and Ecosystem Services: Challenges and Opportunities* 175–251. doi:10.1007/978-94-007-7088-1_11

- González del Tánago, M., D. G. de Jalón, and M. Román. 2012. 'River Restoration in Spain: Theoretical and Practical Approach in the Context of the European Water Framework Directive'. *Environmental Management* 50(1):123–39. doi:10.1007/s00267-012-9862-1
- Gotfredsen, E. 1996. *Aalborg Og Garnisonen*. Aalborg: Selskabet for Aalborgs Historie.
- Grima, N., W. Corcoran, C. Hill-James, B. Langton, H. Sommer, and B. Fisher. 2020. 'The Importance of Urban Natural Areas and Urban Ecosystem Services during the COVID-19 Pandemic'. *PLOS ONE* 15(12):e0243344. doi:10.1371/journal.pone.0243344
- Grizzetti, B. 2019. 'Natural Water Retention Measures for Flood and Drought Risk Management'. *Water* 11(5):944.
- Healey, P. 1997. *Collaborative Planning. Shaping Places in Fragmented Societies*. London: Macmillan Education UK.
- JAJA Architects. n.d. 'Game Streetmekka Aalborg'. Web site available on <https://jaja.archi/project/streetmekka/>
- Jepson, P. 2016. 'A Rewilding Agenda for Europe: Creating a Network of Experimental Reserves'. *Ecography* 39(2). doi:10.1111/ecog.01602
- Johns, D. 2019. 'History of Rewilding: Ideas and Practice'. *Rewilding* 12–33. doi:10.1017/9781108560962.002
- Jørgensen, D. 2015. 'Rethinking Rewilding'. *Geoforum* 65:482–8. doi:10.1016/j.geoforum.2014.11.016
- Kabisch, N., N. Frantzeskaki, and R. Hansen. 2022. 'Principles for Urban Nature-Based Solutions'. *Ambio* 51(6):1388–1401. doi:10.1007/s13280-021-01685-w
- Kakderi, C., E. Oikonomaki, and I. Papadaki. 2021. 'Smart and Resilient Urban Futures for Sustainability in the Post COVID-19 Era: A Review of Policy Responses on Urban Mobility'. *Sustainability* 13(11):6486. doi:10.3390/su13116486
- Kjaer & Richter, Arkitektfirma. n.d. *Kvalitetsprogram for Fabrikken 'Danmark'*. Available on https://apps.aalborgkommune.dk/images/teknisk/PLANBYG/andre_planer/Eternitten_FabrikkenDK_Kvalitetsprogram.pdf
- Linnell, J. D. C., P. Kaczensky, U. Wotschikowsky, N. Lescureux, and L. Boitani. 2015. 'Framing the Relationship between People and Nature in the Context of European Conservation'. *Conservation Biology* 29(4):978–85. doi:10.1111/cobi.12534
- Loures, L., T. Panagopoulos, J. Nunes, and A. Viegas. 2011. 'Learning from Practice: Using Case-Study Research towards Post-Industrial Landscape Redevelopment Theory'. *WIT Transactions on Ecology and the Environment* 23–32. doi:10.2495/ST110031
- MacHarg, I. L. 1969. *Design with Nature*. Garden City, NJ, USA: The Natural History Press.
- Maes, J., and S. Jacobs. 2017. 'Nature-Based Solutions for Europe's Sustainable Development'. *Conservation Letters* 10(1):121–24. doi:10.1111/conl.12216
- Massenberg, J. R., J. Schiller, and C. Schröter-Schlaack. 2023. 'Towards a Holistic Approach to Rewilding in Cultural Landscapes'. *People and Nature* 5(1):45–56. doi:10.1002/pan3.10426
- Meerow, S., and J. P. Newell. 2017. 'Spatial Planning for Multifunctional Green Infrastructure: Growing Resilience in Detroit'. *Landscape and Urban Planning* 159:62–75. doi:10.1016/j.landurbplan.2016.10.005
- Mericskai, D. 2020. *Circular Aalborg: How Can Redevelopments Serve the Transitioning of Aalborg into a Circular City?* Aalborg: Aalborg University.
- Mills, J. G., P. Weinstein, N. J. C. Gellie, L. S. Weyrich, A. J. Lowe, and M. F. Breed. 2017. 'Urban Habitat Restoration Provides a Human Health Benefit through Microbiome Rewilding: The Microbiome Rewilding Hypothesis'. *Restoration Ecology* 25(6):866–72. doi:10.1111/rec.12610
- Danish Ministry of the Environment. 2012. *Spatial Planning in Denmark*. Copenhagen: Ministry of the Environment, Nature Agency.
- Newman, P. 2020. 'Cool Planning: How Urban Planning Can Mainstream Responses to Climate Change'. *Cities* 103:102651. doi:10.1016/j.cities.2020.102651

- Newman, P., T. Beatley, and H. Boyer. 2017. *Resilient Cities*. 2nd ed. Washington, DC: Island Press/Center for Resource Economics.
- Noss, R. F. 1985. 'Wilderness Recovery and Ecological Restoration: An Example for Florida'. *Earth First* 8(5):18–19.
- Owens, M., and J. Wolch. 2019. 'Rewilding Cities'. pp. 280–302 in *Rewilding*, edited by Pettolelli, N., Dutant, S. M., du Toit, J. T.. Cambridge: Cambridge University Press.
- Perino, A., H. M. Pereira, L. M. Navarro, N. Fernández, J. M. Bullock, S. Ceaşu, A. Cortés-Avizanda, R. van Klink, T. Kuemmerle, A. Lomba, G. Pe'er, T. Plieninger, J. M. Benayas, C. J. Sandom, J. C. Svenning, and H. C. Wheeler. 2019. 'Rewilding Complex Ecosystems'. *Science* 364(6438). doi:10.1126/science.aav5570
- Pinkham, R. 2000. *Daylighting: New Life for Buried Streams*. Snowmass, CO: Rocky Mountain Institute.
- Plieninger, T., F. Höchtl, and T. Spek. 2006. 'Traditional Land-Use and Nature Conservation in European Rural Landscapes'. *Environmental Science & Policy* 9(4):317–21. doi:10.1016/j.envsci.2006.03.001
- Polyform. 2013. *Dispositionsforslag for Østre Havn i Aalborg*. Byrum Og Landskab. <https://docplayer.dk/68690739-Dispositionsforslag-for-oestre-havn-i-aalborg-byrum-og-landskab.html>
- Power, M. E., D. Tilman, J. A. Estes, B. A. Menge, W. J. Bond, L. S. Mills, G. Daily, J. C. Castilla, Jane Lubchenco, and R. T. Paine. 1996. 'Challenges in the Quest for Keystones'. *BioScience* 46(8):609–20. doi:10.2307/1312990
- Soulé, M., and R. Noss. 1998. 'Rewilding and Biodiversity: Complementary Goals for Continental Conservation'. *Wild Earth* 8:19–28.
- Teknik og Miljøforvaltningen. 2009. *Budolfi Plads. Registreringer: Fra Skolegadekvarter Til Superbrugsen*. Aalborg: Aalborg Kommune.
- United Nations. 2019. *United Nations Decade on Ecosystem Restoration (2021–2030)*. Resolution adopted by the General Assembly on 1 March 2019. United Nations, General Assembly. Available on <https://digitallibrary.un.org/record/3794317?v=pdf#files>
- United Nations. 2021. *Convention on Biological Diversity. First Draft of the Post-2020 Global Biodiversity Framework (CBD/WG2020/3/3)*. Environment Programme available on: <https://www.cbd.int/doc/c/abb5/591f/2e46096d3f0330b08ce87a45/wg2020-03-03-en.pdf>
- Vasile, A. D. 2021. *The Mobilities of Rudolfi Square. A study of user mobility and mobility justice*. Aalborg: Aalborg University.
- Venter, Z. S., D. N. Barton, V. Gundersen, H. Figari, and M. Nowell. 2020. 'Urban Nature in a Time of Crisis: Recreational Use of Green Space Increases during the COVID-19 Outbreak in Oslo, Norway'. *Environmental Research Letters* 15(10): 104075. doi:10.1088/1748-9326/abb396
- Wejs, A., and A. J. Andersen. 2016. 'Godsbanearialet i Aalborg – En Helhedsorienteret Bydel Tilpasset Fremtidens Klima'. *Årgang* 23:127–31.
- Werk. 2022. 'Godsbanearialet. Ny Skybrudssikret, CO2-Neutral Bydel i Aalborg'. <http://werkarkitekter.dk/projects/godsbanearialet-2/>
- World Bank. 2021. *A Catalogue of Nature-Based Solutions for Urban Resilience*. Washington, DC: World Bank Group.
- Yuan, J., N. Dunnett, and V. Stovin. 2017. 'The Influence of Vegetation on Rain Garden Hydrological Performance'. *Urban Water Journal* 14(10):1083–89. doi:10.1080/1573062X.2017.1363251
- Yuan, J., et al. 2017. 'Integrating Stormwater Management into Green Space Design'. *Water* 9(12):945. doi:10.5070/L5381047118
- Zhang, B., G.D. Xie, J.X. Gao, and Y. Yang. 2014. 'The Cooling Effect of Urban Green Spaces as a Contribution to Energy-Saving and Emission-Reduction: A Case Study in Beijing, China'. *Building and Environment* 76:37–43. doi:10.1016/j.buildenv.2014.03.003

7 Mobility as a Catalyst for Sustainable Urban Transformation

Enza Lissandrello

Introduction: Mobility, Regeneration, and Urban Sustainability

This chapter presents the argument that mobility functions both as a driver and a consequence of Aalborg's broader urban regeneration process. Situated within the city's long-term transformation – from post-industrial restructuring to a sustainability-orientated development agenda – the analysis shows how mobility has played a pivotal role in reshaping spatial configurations, infrastructural priorities, and governance rationalities (Anciaes and Jones 2020; Jensen 2009; Rui and Othengrafen 2023; von Schönfeld and Bertolini 2016). In Aalborg, as in many other world cities, the field of mobility has become increasingly central to the articulation of urban sustainability, especially as it concerns broader and long-lasting relations with automobility in spatial planning with consequences for spatial justice and visions of urban liveability (Monstadt, Rutherford, and Coutard 2025; Sheller 2020). Drawing conceptually on the *Urban Sustainability Compass* (Chapter 1), which is applied to the field of mobility infrastructures, transportation policies, and everyday rhythms of urban life, the chapter focuses on mobility as a generative site for the negotiation of urban sustainability narratives (Bertolini 2020; Cresswell 2025; Manderscheid 2014; Sheller 2017; Uteng and Lucas 2018).

The concept of mobility *transition* refers here to large-scale, systemic changes in socio-technical domains of mobility (Geels 2005; Smith et al., 2005), while *urban sustainability* is considered a more *place-based perspective* on mobility in relation to key projects and processes. The combination of systemic and place-based approaches is defined as *mobilities* through which the spatial, institutional, and narrative dimensions of urban sustainability are negotiated, materialised, and contested. Urban sustainability, in this sense, is not approached as a fixed end-state defined by measurable outcomes, but rather as an evolving field of political practice grounded in situated struggles over accessibility, environmental justice, and the quality of urban life (Agyeman 2007; Bulkeley, Castán Broto, and Maassen 2014; Hajer and Versteeg 2005; Hook et al. 2025). Maintaining this distinction, the chapter examines how Aalborg's mobility projects and processes intersect with broader systemic agendas while simultaneously shaping place-based, context-specific pathways of urban transformation (Hölscher and Frantzeskaki 2021; Jensen et al. 2023).

The Aalborg case is particularly instructive regarding the mobility field. Over the past three decades, Aalborg has shifted from a car-centric paradigm, which was focused on road capacity and traffic flow, towards more integrated approaches that prioritise public transport, active mobility, and the liveability of public spaces (Aalborg Kommune 2017d, 2020a). This transformation has been guided by successive planning instruments and strategic frameworks (Chapter 3), the most important being the ‘Growth Axis’ (Aalborg Kommune 2011) and *Mobilitet 2040* (Aalborg Kommune 2019). These instruments articulate mobility not merely as a functional subsystem but as a *strategic domain* through which broader sustainability goals are operationalised and contested (Freudendal-Pedersen 2020; Høyer 1999).

In Aalborg, sustainable mobility planning intersects with contested visions of land use, climate mitigation, spatial accessibility, and socio-environmental equity. Therefore, rather than being confined to questions of infrastructure provision or modal share, mobility is entangled in the politics of urban transformation and reflects and reshapes normative debates (Jensen and Lanng 2020). As such, the planning, design, and governance of mobility offer a valuable lens through which to examine the evolving urban sustainability narratives that shape and are shaped by urban development and urban regeneration trajectories.

The chapter traces the evolution of mobility in Aalborg from the early 1990s to the present, highlighting the framing shifts from efficiency and flow to themes such as climate action, social inclusion, and urban quality. It examines key projects and processes, including the development of public transport infrastructure, the redesign of central public spaces, the strategic promotion of cycling and multimodal integration, the regulation of car access and street closures, and the experimental deployment of an autonomous and smart mobility system. These empirical domains serve not only to illustrate Aalborg’s planning ambitions but also to illuminate the tensions, dilemmas, and negotiations that characterise urban sustainability in planning practice.

In doing so, the chapter addresses the following research question: *How do Aalborg’s sustainable mobility initiatives – across infrastructure, public space, and governance – navigate the tension between climate action, spatial accessibility, and social inclusion in the making of urban sustainability?* This question anchors a reflexive, context-sensitive inquiry into the material practices, discursive framings, and political processes through which mobility becomes a site of both policy experimentation and everyday meaning-making in the contemporary city.

Structure of the Chapter. The chapter proceeds as follows: *Section 2* introduces the theoretical and methodological framework. *Section 3* traces the evolution of Aalborg’s mobility planning. *Section 4* examines public transportation strategies, including the +BUSs system. *Section 5* explores the intersection of active mobility and urban space through key spatial interventions. *Section 6* discusses cycling initiatives, mobility hubs, and experimental trials. *Section 7* focuses on Aalborg East as a site of peripheral integration and innovation. *Section 8* reflects on unresolved dilemmas related to automobility and infrastructure.

Section 9 analyses the temporalities of implementation, while Section 10 concludes that mobility is a dynamic and negotiated field in Aalborg's broader transition towards urban sustainability.

Mobilities as a Method: Conceptual Anchors and Methodological Strategy

Understanding Aalborg's mobility projects and processes as evolving and contested practices of urban sustainability requires more than a technical analysis of transportation systems. Drawing on the *Urban Sustainability Compass* (Chapter 1), which integrates the following four interpretive logics – urgency, implementation, legitimation, and experimentation – with the following four complementary theoretical perspectives – urban political ecology, just sustainability, urban sustainability governance, and phronetic planning – this chapter positions *mobility* and *mobilities* as a key entry point into the spatial, social, and political dynamics of sustainability. While *mobility* structures institutional goals and planning frameworks, *mobilities* is based on the understanding that everyday movement practices reflect and reproduce power relations, inequalities, and forms of social meaning. *Mobilities* serve both as a methodological tool and an analytical lens for exploring how urban sustainability is envisioned, negotiated, and materialised in specific contexts. The *mobilities* turn in the social sciences (Cresswell 2006; Sheller and Urry 2006; Urry 2007) bring the relational, affective, and power-laden dimensions of movement to the fore and reveal that mobility is entangled with identity, infrastructure, and governance. These entanglements shape and reproduce political subjectivities and collective agency and are shaped by spatial (in)equalities (Schwanen 2018; Sheller 2018). These insights intersect with critical perspectives on transport justice, situated governance (Bevir and Rhodes 2006), and performative planning (Urry 2007), thereby helping to frame urban sustainability as a contested and value-laden process which is embedded in everyday practice. Building on these critical insights – and guided by the interpretive logics of the *Urban Sustainability Compass* – this chapter explores how mobilities deepen and connect four complementary theoretical perspectives on sustainability.

Urban political ecology (Heynen, Kaika, and Swyngedouw 2006) illuminates how those infrastructural responses to climate imperatives, such as promoting low-carbon transit, can unintentionally reproduce socio-spatial inequalities when distributional concerns are overlooked. *Mobilities* sharpens this analysis by revealing that ecological discourses and interventions materialise unevenly across space and often mask marginalisation and reinforce patterns of privilege. *Just sustainability* (Agyeman 2005) strengthens this critique by investigating who benefits or suffers from mobility interventions, particularly in terms of access, displacement, and exclusion. *Mobilities* make these justice concerns visible in the lived, embodied experiences of movement, shaped by age, gender, class, and ability (Hanson 2010). *Urban sustainability governance* exposes how these tensions are governed through institutional and scalar configurations.

Mobilities focuses on how governance structures shape the choreography of everyday movement, thereby illuminating the embedded politics of infrastructure, planning procedures, and decision-making hierarchies. Finally, *phronetic planning* (Flyvbjerg 2002; Peattie 2001) draws attention to the normative and ethical dimensions of these dynamics. *Mobilities* enhance these theoretical perspectives. *Urban political ecology* and *just sustainability* focus on structural injustices in the distribution of mobility benefits and burdens, while *governance* and *phronetic planning* highlight the institutional and normative conditions under which urban inequalities persist or are transformed. The integration of the four theoretical perspectives sharpens the analytical lens on the intersection between ecological ambition, governance rationality, and social justice within the contested domain of urban sustainability (Table 7.1).

Methodologically, the chapter is inspired by interpretive policy analysis and the argumentative turn in planning (Fischer and Forester 1993; Fischer and Gottweis 2013; Wagenaar 2015; Yanow 2000), thereby privileging narrative, meaning-making, and practical judgement to contribute deepen the understanding of how planning discourses and mobility interventions are shaped, contested, and enacted. Empirically, the chapter explores a set of strategic mobility projects and planning processes that have shaped Aalborg’s approach to sustainable urbanism. These are analysed as interconnected interventions embedded in broader regeneration agendas.

It combines document analysis, spatial interpretation, and embedded case study research. Planning documents and strategies are analysed not only for their formal content but also to determine how they construct narratives of urban futures, define challenges, and allocate responsibility. This is complemented by an analysis of visual and spatial artefacts (maps, renderings, plans),

Table 7.1 Mobilities and the Theoretical Perspectives of the Urban Sustainability Compass (Elaboration: Enza Lissandrello) ↴

<i>Mobility/Mobilities</i>	<i>Theoretical Perspectives of the Sustainability Compass</i>
Demonstrates that infrastructural responses to climate change may reinforce socio-spatial inequalities by revealing uneven access and masking marginalisation.	Urban Political Ecology
Exposes lived experiences of access, displacement, and exclusion, highlighting that mobility interventions impact social groups differently.	Just Sustainability
Reveals that governance structures shape movement patterns and embed power in planning processes across institutional and spatial scales.	Urban Sustainability Governance
Shows that practical judgement and value conflicts shape inclusive or exclusive planning outcomes, thereby highlighting the ethical and political dimensions of mobility decisions.	Phronetic Planning

field observations, and dialogues with planners and policy actors, as well as engagement with public discourse through newspaper commentary and participatory events. The analysis is also grounded in reflexive teaching practices and collaborative engagements with planning practitioners at Aalborg University (Lissandrello 2025).

These insights align with contemporary calls for a paradigmatic shift in strategic planning from linear, target-driven approaches towards more adaptive, reflexive, and iterative strategies (Ribeiro, et. al. 2025). In Aalborg, the contradictions between long-term sustainability imaginaries and short-term development logics, such as spatial expansion and car-orientated infrastructure, are particularly evident through the mobility field.

Historical Trajectories and Strategic Frameworks

Aalborg's urban mobility planning has undergone a significant transformation over the past three decades, evolving from a predominantly car-orientated model to one that is more diversified and sustainability-focused. In the post-war period (approx. 1945–1975), car-centric infrastructures dominated Aalborg's urban expansion. Although the 1947 Finger Plan (*Fingerplanen*) was designed specifically for Greater Copenhagen, it served as a conceptual model for Danish urban planning more generally and promoted polycentric development and transit-orientated development (TOD).

In the mid-to-late 20th century, Aalborg expanded its road infrastructure to accommodate especially industrial demands and catalysed expansive road-building strategies, which embedded automobility into the spatial structure and supported a broader model of economic growth based on heavy freight and decentralised production. Aalborg Portland, which is one of the largest producers of cement in Europe, required efficient lorry access to transport materials regionally and internationally. The development of motorways in Aalborg, such as the E45 bypass and the Limfjord tunnel (opened in 1969), was closely linked to the needs of industrial logistics, especially the cement industry.

Suburbanisation further entrenched car dependency. The Danish Planning Act of 1970 reinforced the role of municipalities in coordinating land use and transport, which had consequences for the further shaping of decentralised development logics. This strategic reorientation coincided with Aalborg's crisis of the manufacturing-based economy. The closure of industrial plants in the 1980s and 1990s and Aalborg University, founded in 1974, played a critical role in Aalborg's diversified economy to serve a growing student population but also to support compact development and knowledge-intensive investment.

The 1990s marked a pivotal shift. The 1994 Aalborg Charter, forged at the European Sustainable Cities and Towns Conference, placed the city at the forefront of European sustainability discourses. Although mobility was not central to the Charter, the initiative established key principles that would later shape mobility planning, particularly the integration of environmental goals with urban governance and civic engagement. However, between 1994 and the early 2000s,

Aalborg's mobility policies remained largely shaped by car-centric planning logics with continued investment in road infrastructure and suburban expansion. The Aalborg Charter thus appeared more symbolic than operative in its early years.

Historical work led by planning scholars to understand the tensions between sustainability, urban planning and transport has been fundamental (Flyvbjerg 1998; Kristensen and Marshall 1999; Næss 2006b). Flyvbjerg's analysis of the Aalborg Project highlighted enduring conflicts between economic growth, environmental commitments, and democratic legitimacy. Næss's critique of 'predict and provide' transportation modelling and his empirical work on urban form and commuting patterns exposed the systemic inertia that sustains car dependency in supposedly green cities.

Environmental and climate discourses gradually gained traction in the early 2000s, which was reflected in Aalborg's strategic visions for the city centre (Aalborg Kommune 2002) and planning strategies (Aalborg Kommune 2014), which embedded sustainability concerns in long-term planning, including climate action, accessibility, and social inclusion. Rather than executing a single master plan, the city adopted incremental approaches that relied on pilot projects, co-funding, and negotiated planning. These strategies explicitly prioritised pedestrianisation, cycling infrastructure, and the integration of public transport into the urban structure, which reflected the strategic shift from traffic engineering to sustainable mobility.

By the early 2010s, the concept of a 'Growth Axis' (*vækstakse*) had emerged as a key spatial strategy (Aalborg Kommune 2011). Institutionalised in strategic documents, the Growth Axis is defined spatially as a development corridor of urban regeneration and densification. The light rail (*Letbane*) became the backbone of this ambition. Although eventually replaced by the PlusBUS system due to financial constraints, the strategic concept of the Growth Axis maintained the strategic spatial ambition.

Parallel interventions further diversified Aalborg's mobility agenda. New investments in the redesign of public space (Budolfi Plads, Nytorv, Kennedy Plads) and the expansion of cycling infrastructure reflected the aim to rebalance car-dominated urban spaces through greening, pedestrianisation, and social inclusivity.

The 2019 strategy *Mobilitet 2040* marked a comprehensive turn towards sustainability-orientated planning with a set of ambitious sustainable mobility targets such as modal shift, integration, and resilience. Concepts such as mobility hubs, school street pilots, and inclusive design reflected increasing attention to experimentation and legitimacy, as well as embedded practices of stakeholder engagement. Recent studies reinforce these directions (Jensen and Lanng 2020; Kveladze, Rosenbeck Gøeg, and Agerholm 2021; Lanng et al. 2021).

The Rise of Sustainable Public Transport in Aalborg

A key trajectory in Aalborg's mobility transformation has been the strategic repositioning of public transport as a central driver of urban sustainability.

This is exemplified by the shift from the proposed light rail (*Letbane*) to the implemented Bus Rapid Transit system, PlusBUS (+BUS). More than a technical substitution, this transition reflects a broader planning shift, placing public transport at the heart of strategies for regional connectivity, spatial restructuring, and climate-orientated regeneration. While the *Letbane* project embodied a visionary ambition aligned with European urban rail-based models, the +BUS emerged as a pragmatic response to financial and political constraints, retaining many original objectives related to intermodality, accessibility, and integration with urban development.

Both initiatives illustrate strong institutional collaboration and the growing importance of aligning transport infrastructure with land use and urban design. The spatial transformations around +BUS nodes – through upgraded public spaces and transit-orientated development – demonstrate how sustainable mobility can reshape urban morphology and everyday mobility patterns. These developments align with *Mobilitet 2040* (Aalborg Kommune 2019), which explicitly frames public transport as a strategic lever for addressing climate goals and population growth.

The Light Rail Proposal: Rail-Based Aspirations

Considered to be one of Aalborg's most emblematic – but ultimately unrealised – mobility interventions, the light rail (*Letbane*) proposal encapsulates both the ambition and complexity of advancing sustainable mobility through rail infrastructure. As early as the 2000s, the idea of a light rail system began to emerge within Aalborg's strategic planning discourse, inspired by international trends in sustainable urbanism and rail-based mobility solutions, which had already been tested in several European cities (Lissandrello et al. 2017). The proposal was formally included in strategic planning documents such as *Fysisk Vision 2025* (Aalborg Kommune 2013b). The light rail was not only conceived as a public transport solution but also as the transformative backbone of the 'Growth Axis' that could reduce car dependency, facilitate densification, and create links between institutional and residential nodes such as Aalborg University, the regional hospital, and Aalborg Airport along a coherent corridor.

From a scholarly perspective, light rail projects in medium-sized cities are indeed variously discussed, not as purely technical interventions for commuting but framed as forms of 'infrastructural storytelling' (Mäntysalo, Olesen, and Granqvist 2020; Olesen 2012, 2020), where aspirations for sustainability, modernity, and competitiveness are materially inscribed into the urban structure. The Aalborg light rail thus functioned as both a transport initiative and a symbolic marker of Aalborg's post-industrial, sustainable urban future.

By 2013–2014, Aalborg had completed a Phase 1 feasibility study for the proposed light rail (*Letbane*) system, which included an Environmental Impact Assessment (EIA), passenger demand projections of approximately 66,000 daily users, and a mapped transit corridor. Financial modelling estimated total project costs at DKK 1.8 billion (approximately USD 325 million), with DKK

327 million (USD 59 million) allocated for the relocation of utilities and DKK 12 million (USD 2.2 million) for preliminary studies (*forundersøgelser*). The proposal anticipated that around 45% of future housing and employment growth would be located within a 500-metre buffer zone along the alignment (Aalborg Kommune 2015).

The proposal for the light rail gained traction in 2015 when the Danish government provisionally earmarked DKK 830 million (approximately USD 150 million) for the project in the national Finance Act (Regeringen 2015). However, by 2017, this funding was withdrawn due to a shift in infrastructure priorities, political uncertainty, and scrutiny over budget overruns in comparable rail projects – most notably the Aarhus light rail, Denmark’s first modern light rail system (Midttrafik 2022; Transportministeriet 2017). Parliamentary debates during this period revealed a growing preference for more flexible, lower-cost bus-based solutions in medium-sized cities, ultimately paving the way for prioritising the +BUS (BRT) alternative (Folketinget 2017).

Despite the shelving of the light rail project, the corridor retained a central role in Aalborg’s strategic planning. As outlined in *Planstrategi 2016*, the Growth Axis (*Vækstaksen*) continued to serve as a ‘structural backbone’ for concentrated urban development and high-quality public transport (Aalborg Kommune 2017d). The +BUS retained the logic of the corridor, prioritised frequency and accessibility, and catalysed street and public space redesign. The narrative continuity illustrates the performative and legitimising power of planning rhetoric in sustaining political and public support, even amid major infrastructural shifts. It also demonstrates that unbuilt infrastructure may exert influence through its discursive and regulatory afterlife, thereby shaping imaginaries and guiding development trajectories.

From Light Rail to +BUS: Reconfiguring the Corridor

Following the cancellation of the light rail project in 2017, Aalborg Municipality and regional partners – including the regional public transport authority Nordjyllands Trafikselskab (NT), the North Denmark Region, and local planning authorities – sought a financially viable and technically feasible alternative that would preserve the original strategic vision. Aalborg’s planners recalibrated their ambitions for sustainable transit along the same north-south development axis, supporting the compact urban model embedded in the city’s long-term ‘Growth Axis’ (see also Chapter 3). This corridor retained importance as a spatial framework for advancing inclusive, climate-orientated urban transformation.

Initial ideas for a rapid bus system were shaped by Swedish examples, including Malmö’s *Malmö Expressen* and Gothenburg’s *ElectriCity* initiative. These Nordic BRT models provided a practical reference, demonstrating that high-capacity buses and dedicated lanes could emulate many of the benefits of light rail while maintaining flexibility and cost-effectiveness. Compared to the light rail, the BRT alternative allowed more adaptable implementation timelines and smoother political negotiation. The +BUS system emerged as

a pragmatic response that retained spatial ambition while aligning with fiscal constraints, climate goals, and implementation feasibility.

Launched on 23 September 2023, Aalborg's +BUS system is Denmark's first full-scale Bus Rapid Transit (BRT) solution Figure 7.1. The 12 km route spans from Væddeløbsbanen in the west through the city centre to the hospital (*Hospitalsbyen*) in the east, with 22 stops and a total travel time of approximately 34 minutes. Operated by 13 electric articulated buses, each nearly 25 metres long and capable of carrying up to 153 passengers, +BUS runs on dedicated lanes with signal priority, level boarding, and real-time information – delivering a *light-rail-like experience* with lower infrastructure costs (Aalborg Kommune 2025; Lokalredaktionen 2024).

In its first year, ridership increased by 25%, reaching nearly 3.8 million trips in 2024. Weekday averages were around 13,500, with peaks exceeding 16,000 on some days. To meet this growing demand – particularly along the extension to Hospitalsbyen – Aalborg Municipality announced that, beginning in August 2025, service frequency would double to every 15 minutes instead of every 30. During its first year, the +BUS system travelled over 719,000 kilometres and operated for 34,837 hours (Aalborg Kommune 2025).

The system is also a central pillar in Aalborg's climate strategy. With 107 electric city buses now in operation, municipal transit contributes to an annual



Figure 7.1 The +BUS System in Aalborg at Nytorv. ↙

(Photo: Enza Lissandrello).

reduction of 7,000 tonnes of CO₂, and all buses are now fossil- and emissions-free (LigeHer.nu 2024). Beyond its environmental impact, +BUS enhances access to education, culture, and healthcare – especially along the extended route to the regional hospital, where demand is projected to rise as new medical facilities open in 2026 (Lokalredaktionen 2024).

The public reception has been largely positive. The *Kollektiv Trafik Forum*¹ praised the +BUS for its operational quality and innovation, while regional media noted widespread support alongside concerns over financial sustainability (Kollektiv Trafik Forum 2025). The +BUS system has become emblematic of Aalborg's adaptive planning approach, one that maintains long-term strategic coherence while responding to evolving technical and political contexts. By retaining the logic of the light rail corridor, the +BUS highlights the potential of high-capacity, flexible transportation systems to reconcile mobility, climate, and urban development goals when supported by investment, public legitimacy, and institutional alignment. Notably, as described in *Mobilitet 2040*, the +BUS system is not merely an infrastructural upgrade but a vehicle for territorial integration and social cohesion. Moreover, the plan recognises that future mobility should be designed for all generations, with particular attention to age-friendly infrastructure, accessibility, and equitable service distribution.

Walking the City: Public Space Transformations

The transformation of central public spaces in Aalborg illuminates how sustainable mobility is increasingly embedded in urban planning and design. This section examines three key interventions: *Budolfi Plads*, *Nytorv*, and *Kennedy Plads*. Each of them represents distinct moments and strategies in the city's shift towards accessible, low-carbon, and people-centred mobility. All three spaces function as nodal interventions where transport infrastructure, environmental planning, and public life intersect. *Budolfi Plads* reflects a participatory, implementation-orientated approach, reallocating space from cars to pedestrians and integrating climate adaptation. *Nytorv*, transformed in the 1980s, marked an early experiment in bus prioritisation and air quality management, prefiguring today's modal shift agenda. *Kennedy Plads*, adjacent to the central station and +BUS terminal, exemplifies a contemporary model of intermodality and transit-orientated development, combining electric buses, cycling infrastructure, and urban greening.

Budolfi Plads: Reclaiming Urban Space through People-Centred Design

The redevelopment of *Budolfi Plads* illustrates a deliberate reconfiguration of urban space driven by Aalborg Municipality's evolving mobility agenda. Informed by *Lokalplan 1-1-117* (Aalborg Kommune 2017a), the project exemplifies how parking policies, pedestrian infrastructure, and transport accessibility are embedded in strategies to promote sustainable, inclusive, and multifunctional urban environments.

A central mobility ambition of the plan was the removal of surface-level car parking and the relocation of vehicular access underground. This decision enabled the square's reorientation towards soft mobility and public life, liberating space for pedestrians, cyclists, and communal uses. The new underground facility was intentionally dimensioned with *limited parking capacity*, reflecting Aalborg's broader commitment to reducing car dependence in the city centre. Traffic access is now tightly regulated, permitted only for service and emergency vehicles, in line with mobility objectives to deprioritise through-traffic and enhance pedestrian safety.

Pedestrian and cyclist accessibility was substantially strengthened. New paving, visual guidance systems, and shared-surface designs enable intuitive and barrier-free movement across the square. The project specifically addresses *universal accessibility*, including clear passageways for individuals with reduced mobility, ramped transitions, and anti-slip surfaces, thereby aligning with *Mobilitet 2040*'s principles of inclusive mobility for all age groups.

The plan further situates Budolfi Plads within a broader network of sustainable transport infrastructure. Located within walking distance of Aalborg's central station and Kennedy Plads and future +BUS lines, the square functions as a local anchor within the city's intermodal mobility system. Bicycle parking facilities and pedestrian linkages strengthen this role, facilitating first- and last-mile connectivity and encouraging modal shifts away from private car use.

In addition to physical restructuring, the planning process at Budolfi Plads reflected an integrated and participatory approach to mobility governance. Public consultations foregrounded concerns around traffic, noise, and access, leading planners and designers to balance functional demands, such as deliveries and waste collection, with the prioritisation of non-motorised users. These trade-offs have been managed through zoning regulations, time-based access restrictions, and clear signage, all underpinned by the local plan's regulatory framework (Aalborg Kommune 2017a).

The completed transformation of Budolfi Plads thus constitutes more than a surface-level redesign. The area has been reconfigured from a former parking lot into a lush, multifunctional public space, an urban oasis that emphasises pedestrian flow, greenery, lighting, and a peaceful environment (Chapter 6), which received awards such as the City of Aalborg's Architecture Prize and recognition from the European Green Cities Award 2021.

Budolfi Square exemplifies Aalborg's strategic orientation towards compact, liveable, and walkable urban environments and provides a concrete case of how mobility reform can anchor spatial regeneration in historic urban cores.

Nytorv: Reconfiguring Mobility and Urban Air through Transport Planning

Nytorv, one of Aalborg's oldest central squares, has historically functioned as a civic and commercial meeting point, shaped over centuries by trade, administration, and public life. By the late 20th century, however, it had become increasingly dominated by vehicular traffic, prompting a reimagining of its role within

the city's evolving mobility landscape. Initiated under *Lokalplan 10-010* (Aalborg Kommune 2017c), the square was designated as a dedicated *bus centre*, reflecting the municipality's strategic efforts to reduce private car dominance in the historic core while enhancing intermodality, pedestrian connectivity, and air quality. The plan explicitly prohibited through-traffic by private vehicles, reserving Nytorv and Østerågade for city buses, taxis, cyclists, pedestrians, and service access only. Six bus bays with dedicated perrons and passenger amenities were introduced to streamline boarding and improve comfort, while new pedestrian links and cycle corridors ensured that non-motorised movement was not just preserved but enhanced. Notably, the plan also incorporated compensatory parking payments, whereby developers were required to fund public parking infrastructure elsewhere rather than build private parking, a mechanism designed to disincentivise car use in the city centre. At the time, traffic and environmental assessments predicted a substantial modal shift: bus traffic would rise from 50 to 1,100 vehicles daily, while private car volumes would fall from over 5,000 to just 200 vehicles/day. This was expected to reduce CO emissions on Nytorv by 90%, though diesel bus traffic would increase particulate emissions (Aalborg Kommune 2017c:7–9). These calculations, however, are no longer environmentally relevant.

Today, Aalborg's city bus fleet has transitioned to fully electric buses, particularly along the +BUS (BRT) corridors. This transition, as a part of the *Mobilitet 2040* strategy, dramatically improves the environmental profile of Nytorv (Aalborg Kommune 2018). Electric buses produce no tailpipe emissions, contributing to improved urban air quality, and their quiet operation reduces noise pollution in the densely built urban environment. The environmental burdens anticipated in the 1980s – notably particulate matter and noise from diesel combustion – have been effectively neutralised by technological innovation and coordinated public procurement. Nytorv's redevelopment represents not only an early experiment in public transport prioritisation but also a living example of adaptive mobility governance, in which infrastructural decisions made decades ago have been recalibrated through a reconfigured urban layout featuring dedicated bus lanes, a clear modal hierarchy, reduced parking, and enhanced walkability. The site exemplifies a layered approach to urban sustainability, where earlier planning rationalities are extended and reinterpreted in light of contemporary priorities, most notably, the expansion of pedestrian zones as part of broader efforts in climate action and everyday active mobility (Lissandrello 2017).

Kennedy Plads: From Traffic Node to Multimodal Gateway

Kennedy Plads, situated directly adjacent to Aalborg's central railway station, has long functioned as a mobility hub shaped by shifting planning ideologies. Its proximity to Aalborg Station, opened in 1869 as part of Denmark's railway expansion, rendered it a strategic site for regional transit. During the 1960s, Kennedy Plads was redesigned according to modernist principles, dominated

by surface parking, extensive bus infrastructure, and administrative buildings to accommodate growing car ownership and centralised logistics. This configuration, while efficient for car-based movement, contributed to spatial fragmentation, low pedestrian quality, and a diminished civic presence.

Recognising these challenges, Aalborg Municipality has since 2005 pursued a series of phased interventions to reposition Kennedy Plads as a multimodal, human-scaled space. These culminated in *Lokalplan 1-1-137* (Aalborg Kommune 2020b), which redefined the square's identity through a series of integrated urban mobility, design, and ecological measures. The plan's purpose is clear: to prioritise *collective transport, pedestrian and cycling access*, while enhancing the square's quality as a central public space.

A major driver of the transformation is the introduction of the *+BUS (BRT) line*, which crosses Kennedy Plads and restructures its spatial and functional layout. The new traffic design consolidates *city and regional bus stops* along shared corridors, facilitating smoother transfers and reducing modal separation. The square now integrates dedicated pedestrian and bicycle lines, 'islands' for seating and greenery, and areas for public life, such as udeservering (outdoor seating) and micro-biodiversity zones. This programming is guided by *primary movement lines*, which shape zones of use while ensuring legible, accessible flows across the square. Kennedy Plads is also a key site for advancing cycling intermodality. With the expected demand for 1,600 bicycle parking spaces, the local plan allocates areas for 900 surface-level spots – 300 of which are covered – and reserves space for a future underground parking facility. These are supported by connections to major commuter routes, especially between Jyllandsgade and Prinsensgade, and are complemented by pedestrian tunnels linking to Kildeparken and the train platforms.

Automobility has been deprioritised. Vehicular access is limited to service traffic, kiss-and-ride functions, and short-term parking consolidated in the northern perimeter. New layouts favour transit-orientated development (TOD) logics, balancing essential car access with the creation of inclusive public realms. The square's resurfacing, planting of diverse trees, micro-climatic design, and the introduction of a sculptural roof over the BRT perrons, designed as a 'floating concrete canopy', symbolise this shift towards human-centred infrastructure and climate-responsive urbanism.

The environmental logic of Kennedy Plads Figure 7.2 also reflects broader governance ambitions articulated in *Mobilitet 2040*. The square now supports zero-emission mobility through the deployment of *electric buses*, reduced traffic-related noise, and improved air quality. Lighting, materials, and seating are coordinated to improve safety, visibility, and comfort while integrating the aesthetic of a contemporary transit plaza.

In sum, Kennedy Square illustrates Aalborg's incremental but strategic reconfiguration of its most infrastructurally saturated spaces. It functions as a *multimodal convergence zone* that supports everyday mobility while embodying the city's commitment to sustainability, accessibility, and the reinvention of central public spaces.



Figure 7.2 Kennedy Plads. ↗

(Photo: Enza Lissandrello).

Cycling: Infrastructural Experiments and Modal Integration

Cycling has re-emerged as a central pillar in Aalborg's sustainable mobility strategy, with infrastructure increasingly supporting cohesive, multimodal networks. Since the 1990s, national and municipal frameworks have promoted cycling both as a response to climate targets and as a broader public health and accessibility strategy. Denmark's first National Cycling Strategy (2007; revised 2014) set ambitious modal shift goals and offered municipalities co-financing and knowledge-sharing support (Transportministeriet 2014, 2017; Vejdirektoratet 2020).

Aalborg has localised these ambitions through instruments such as the Bicycle Action Plan (*Cykelhandlingsplan*), first introduced in the early 2000s and updated most recently in 2017 (Aalborg Kommune 2017d), to promote a connected bicycle network, which links residential areas with schools, workplaces, and mobility hubs. Measures include synchronised signals for cyclists, enhanced bike parking at stations, and expanded dedicated lanes.

Rather than seeing cycling as a mere alternative to cars, Aalborg's planners increasingly view it as a structural element of urban liveability. Cycling is not only integrated with public transport – particularly the +BUS system – but it is also embedded in visions of spatial regeneration and innovation. This includes

mobility hubs, new fjord bridges, and potential experiments with autonomous transport technologies. The following sections examine how cycling infrastructure is being reimagined to support connectivity, modal integration, and urban transformation.

Cycling Bridges and Cross-Fjord Integration

A major infrastructural milestone in Aalborg's cycling landscape was reached with the completion of the *Kulturbroen* ('Cultural Bridge'), which opened on 4 March 2017 Figure 7.3. This is a dedicated pedestrian and bicycle bridge suspended from the existing railway bridge over the Limfjord. Designed by C.F. Møller Architects and COWI, the bridge promotes cross-fjord cohesion between Aalborg and Nørresundby and supports active, low-carbon mobility. Spanning 403 m in length and 4 m in width, its gently sloped decks ensure universal accessibility. The bridge includes integrated LED lighting and multiple viewing platforms, and it is positioned as a recreational and commuting path that connects cultural and educational nodes. Per Aalborg Municipality, *Kulturbroen* not only enhanced cycling and walking options where only the car- and train-supported Limfjordsbroen existed, but also '*boosted the city's development by making cycling and walking more attractive and enhancing cohesion around the fjord*'



Figure 7.3 Kulturbroen. ↻

(Photo: Enza Lissandrello).

(Aalborg Kommune 2025, translated from Danish by the author). This emphasis on attractive active mobility aligns directly with the goals of the municipality strategy *Mobilitet 2040*, prioritising a coherent, high-quality cycle network that links urban centres, new developments, and public institutions, contributing to the municipality's 2050 climate neutrality target.

In planning terms, the bridge was made possible by the adoption of Lokalplan 1-2-109 (Aalborg Kommune 2014), which provides the regulatory and technical framework for the construction of a pedestrian and bicycle bridge attached to the existing railway bridge over the Limfjord. It frames *Kulturbroen* as both a cycling mobility corridor and a linear public space in harmonious integration with the fjord-front environment. The choice to hang the bridge from existing railway infrastructure minimised land use and preserved visual openness, embodying a compact urban sustainability approach.

Building on this success, Aalborg is now preparing another pedestrian and bicycle connection, the *Stigsborg Bridge*. Designed by Gehl Architects, this new infrastructure will link central Aalborg and Stigsborg's developing district, expected to house over 7,500 residents, via points such as Musikkens Plads and the Stigsborg area (Chapter 4). Feasibility studies (2021–2023) have explored route options, structural form, and environmental impact. The city's project page notes: '*a new bridge between Aalborg C and Stigsborg can radically change the development perspectives by gathering the city around the fjord... boosting sustainable mobility*' (Aalborg Kommune 2025 translated from Danish by the author). Jointly financed by the municipality, Stigsborg P/S, and philanthropic foundations, the project supports modal shift, spatial integration, and Transit-Oriented Development (TOD), directly echoing the priorities of *Mobilitet 2040*.

Together, *Kulturbroen* and the forthcoming *Stigsborg Bridge* exemplify Aalborg's strategic investment in *cross-fjord active mobility infrastructure* as a way to reshape the city's spatial logic. These bridges are not merely functional passages; they are climate-focused public spaces, enhancing recreational value, cultural cohesion across the fjord, and long-term non-motorised sustainability in Aalborg's urban connectivity and accessibility.

Mobility Hubs: Infrastructure for Urban Integration

Aalborg's efforts to integrate sustainable mobility into everyday urban life have gained momentum through the implementation of mobility hubs (*mobilitetshubs*) – multifunctional nodes that facilitate seamless transitions between walking, cycling, public transport, car-sharing, and electric vehicle charging. Strategically situated in areas of high mobility demand, such as Kennedy Plads, the hospital district, university campuses, and major retail centres, these hubs are designed to strengthen last-mile connectivity, reduce car dependency, and support the city's climate objectives (Aalborg Kommune 2019).

The vision behind these hubs was formalised in the *Mobilitet 2040* document, which articulated the need for a coherent, accessible, and climate-friendly mobility system, with the bicycle positioned as a primary mode of transport.

This ambition was further reinforced in the *Cykelpolitik 2020* policy, where Aalborg Municipality framed cycling not merely as a supplement to motorised transport but as a foundational component of urban development. The policy outlines Aalborg's commitment to ensuring that cycling is safe, attractive, and integrated into all facets of urban life, including education, leisure, and commuting (Aalborg Kommune 2020a).

At the core of Aalborg's cycling strategy is a strong focus on infrastructure quality, comfort, and connectivity. 'Mobility hubs' play a central role in this approach to offer secure, high-capacity bicycle parking (including covered and digital locker systems), real-time public transport information, synchronised traffic signals, and user-friendly wayfinding. These hubs are frequently located along +BUS corridors and have been co-funded by national cycling programmes. As outlined in *Denmark's National Cykelstrategi* (Transportministeriet 2014), such initiatives aim to normalise cycling for all age groups by ensuring direct and coherent links between residential neighbourhoods, city centres, and public institutions.

The Danish government's *Infrastrukturplan 2035* (Transportministeriet 2021) is a landmark investment agreement allocating DKK 160 billion (approximately USD 24 billion) to national transport infrastructure through 2035. Within this, over DKK 2 billion (approximately USD 300 million) is earmarked for cycling infrastructure between 2021 and 2035, with a strong emphasis on improving safety, facilitating modal shift, and advancing the green transition of Denmark's transport sector. This funding has enabled municipalities like Aalborg to strengthen active mobility initiatives, particularly through the development of mobility hubs, which directly benefit from national support and exemplify how municipal and state-level strategies can align around shared sustainability objectives.

These planning efforts are also data-informed. According to the National Travel Survey (Christiansen and Andersen, 2024) cycling accounts for approximately 15% of all trips in Denmark and nearly 30% of trips under 10 kilometres, making it highly relevant for short- and medium-distance urban mobility. These figures highlight the influence of well-integrated infrastructure on everyday modal choices.

Decades of research on behavioural change in mobility underline the importance of integrating infrastructure investment, spatial density, and land-use policy to shift travel behaviour (Næss 2006b, 2012). This logic is evident in the planning of Aalborg's mobility hubs, which are strategically placed within dense residential and mixed-use areas to promote multimodal travel. Urban regeneration projects discussed in Chapters 4 and 5 exemplify how these hubs are embedded into neighbourhoods to encourage sustainable, inclusive, and place-based daily practices.

Urban Regeneration through Mobility: Aalborg East and Kildeparken

Aalborg East (*Aalborg Øst*) stands today as a compelling example of how integrated mobility and urban regeneration strategies can reconfigure the social

and spatial peripheries of the post-war welfare city. Originally developed in the 1960s and 1970s according to modernist planning ideals, the district was shaped by functional zoning, mono-functional housing blocks, and a car-orientated infrastructures that prioritised traffic segregation. While these layouts offered abundant green spaces and orderly housing, they also contributed to internal fragmentation, limited permeability, and socio-spatial isolation from central Aalborg. By the early 2000s, Aalborg East had become emblematic of the structural and symbolic challenges facing peripheral suburban districts in Denmark, prompting a series of national and local interventions aimed at reversing patterns of decline.

A turning point came in 2008 with the decision to build the new regional super hospital (*Universitetshospitalet*) in the southeastern part of the district. The hospital became a catalyst for wider urban investments and spurred Aalborg Municipality to launch a collaborative think tank. This platform brought together housing associations, private landowners, institutions, and local businesses to co-develop a shared vision for the regeneration of Aalborg East, grounded in the logic of urgency and inter-sectoral cooperation. As described in Aalborg Kommune's vision project *City in Between* for Aalborg East (Aalborg Kommune, 2013a, Tillæg H-019). The *City in Between* urban design competition (2011–2012), funded by *Realdania*², reinforced these efforts by reframing Aalborg East not as an enclave but as a potential connector: spatially, socially, and functionally.

The transformations (Aalborg Kommune 2017b) placed a neglected underpass and footpath running through the district called *Astrupstien* at the centre as a multimodal urban spine and as a 'human street' for pedestrians, cyclists, and low-speed public transport. The legal framework enabled densification through new linear housing blocks (*stokbebyggelser*) orientated perpendicularly to the path, the creation of public squares along its length, and improved connectivity to the university, the city centre, and the future hospital. These spatial interventions were underpinned by principles of place-making, safety, and integration, aiming to dissolve long-standing physical and symbolic barriers within the district (Aalborg Kommune, 2015).

In parallel, the *Kildeparken 2020* masterplan was developed by Himmerland Housing Association in collaboration with COWI and EFFEKT (Effekt, Kærsgaard & Andersen, and SLA 2014; Rose et al., 2019 to set out an ambitious roadmap for the renewal of one of Aalborg East's largest public housing estates. Guided by nine design principles drawn from national urban regeneration debates (e.g., 'From Deprived Housing Area to Whole Neighbourhood'), the plan restructured street networks, introduced mixed-use buildings and varied housing typologies (e.g., row houses, penthouses, villa-apartments), and reimagined shared outdoor spaces. Public life was activated through a multi-functional neighbourhood house (*fælleshuse*), community gardens, and a health and neighbourhood centre. Notably, the plan proposed the transformation of *Astrupstien* into a shared space combining cycling, walking, and bus infrastructure with improved lighting, stormwater management, and place-based urban design interventions Figure 7.4a.



(a)



(b)

Figure 7.4 (a) Location of the Kildparken district in the eastern part of Aalborg East.
(b) Kildparken Redevelopment Project. ♣

(Source: Aalborg Kommune 2017a).

As part of Aalborg Municipality's broader strategy of mobility innovation, the Aalborg East district also became the testing ground for Denmark's first autonomous public transport trial in a residential setting. Implemented in 2020 under the EU-funded AHA (*Autonomous Mobility in Urban and Suburban Areas*) project, the pilot tested a small electric self-driving minibus along a 2.1 km loop (Urban Mobility Observatory 2021). Operated in collaboration with Nordjyllands Trafikselskab (NT), technology provider Holo, and local universities, the vehicle served areas with limited public transport options. Although limited by legal and infrastructural constraints, resulting in its eventual discontinuation, the trial generated important insights into user acceptance, service integration, and the institutional conditions necessary for supporting future mobility experimentation (Holo/Let's Holo 2021).

The planning logics, physical investments, and technological experimentation in Aalborg East reflect a multi-scalar governance approach: one that aligns climate resilience, social inclusion, and spatial transformation. The long-term role of tenant democracy and public-private partnerships anchored by the Himmerland Housing Association and Aalborg Municipality has proven central in enabling continuity and trust across project phases. In this regard, Kildeparken 2020 and Astrupstien constitute more than technical interventions but have become mediators of a new urban narrative, replacing discourses of deprivation with those of innovation, care, and sustainability Figure 7.4b.

This transformation was formally recognised in 2023 when Aalborg East received the New European Bauhaus Champions Prize in the category 'Prioritising the places and people that need it the most'. The award celebrated the district's capacity to integrate architecture, mobility, and social sustainability. Quantitative indicators further underscore the success: employment increased by 56% between 2012 and 2020, average household income rose by 36%, educational attainment improved significantly, and crime dropped by 62%. These metrics, while partial, demonstrate that mobility-led regeneration, when paired with institutional learning and design innovation, can reshape peripheral urban areas both structurally and symbolically (European Commission 2023).

As Aalborg East continues to evolve, its experience offers a powerful lesson: sustainable mobility infrastructures are not merely conduits for movement but are spatial and political tools for reweaving the urban structure. Through the reimagination of Astrupstien, the co-creation of new governance structures, and the embedding of care infrastructures, the district has been repositioned not as a margin to be managed, but as a vital node in Aalborg's urban sustainability agenda (Realdania, 2025).

Automobility in Tension: Sustainability Dilemmas in Contemporary Urban Planning

Aalborg's mobility transformation reveals a persisting dilemma embedded within contemporary urban sustainability: the tension between promoting

low-carbon, inclusive mobility and the continued reproduction of car-orientated infrastructures. While projects such as *Parkeringspolitik 2024* and the redevelopment of *Sygehus Nord-Gåsepigen* reallocate space towards active transport and urban greening, the proposed *Third Limfjord Connection* signals the resilience of automobility within regional planning imaginaries. These initiatives reflect not just contrasting transport strategies but fundamentally competing visions of sustainability – highlighting how automobility remains structurally and politically embedded even as cities pursue more climate-aligned and equitable mobility futures.

Parking Policies 2024: From Regulation to Spatial Strategy

Aalborg Municipality's parking policies (*Aalborg Kommune, 2024*) represent a significant shift in how parking is framed and governed within urban mobility and planning strategies. Moving away from treating parking as a neutral infrastructural necessity, the policy reframes it as an active planning instrument, one that can shape urban form, influence mobility behaviour, and advance climate objectives. The policy is grounded in five overarching principles: the conception of parking as a public service; the promotion of flexible use through digital systems; the strategic reallocation of streets and surface spaces; alignment with sustainability and climate goals; and the regulation of parking provision in new developments. These principles emerged through an inclusive public consultation process that included telephone surveys and stakeholder workshops, signalling a deliberate effort to build policy legitimacy through participatory engagement.

Design strategies embedded in the policy illustrate the spatial dimension of Aalborg's evolving parking regime. These include efforts to place parking underground, repurpose surface lots into public plazas, and incorporate storm-water management into parking design. Such interventions not only support Aalborg's environmental commitments but also contribute to a more aesthetically and functionally integrated urban landscape. The reconfiguration of parking is thus not merely technical but also symbolic: it reflects a broader normative shift towards urban sustainability and liveability.

Nonetheless, challenges remain. Aalborg continues to maintain a relatively high number of public parking spaces, particularly in peripheral districts where car dependency remains entrenched. To address these spatial and social asymmetries, the municipality has implemented differentiated regulations. In central urban zones, stricter controls and higher parking fees are employed, whereas more flexible approaches are used in outlying areas. The introduction of residential permit schemes and multi-storey parking structures also aims to reduce pressure on surface lots while maintaining access for residents and businesses.

Importantly, the parking policy acknowledges the tension between climate ambition and inclusive mobility. Residents in outlying neighbourhoods, who often have fewer alternatives to private car use, may be disproportionately

affected by restrictive measures. Aalborg's strategy seeks to strike a balance, supporting modal shift and environmental objectives while ensuring spatial justice and accessibility across different urban contexts.

Gåsepigen and Sygehus Nord: Reclaiming Parking Space

The redevelopment of the hospital site at *Sygehus Nord* at the northern edge of the historic city centre; this site is undergoing a transformation into a mixed-use urban district due to the dismissal of the hospital, which will include housing, public facilities, green spaces, and improved connections to the surrounding city. A central feature of this urban regeneration project is that it offers a concrete illustration of how Aalborg's parking and mobility policy is being implemented at the neighbourhood scale. The idea is to integrate a new pedestrian and cycling bridge that will traverse the surface parking lot (*Gåsepigen*) and reclaim approximately 35–45 per cent of its area for new access ramps, landscaping, and infrastructure to support active mobility (Aalborg Kommune 2025).

The *Gåsepigen* project exemplifies Aalborg's broader ambition to reallocate underutilised space towards multifunctional and sustainable uses. It transforms a mono-functional parking lot into a critical urban node that connects the historical centre with an emerging neighbourhood while also embedding green infrastructure and non-motorised mobility into the city's structure. Although car access will still be accommodated in a limited and reconfigured form, the intervention signals a spatial and functional shift away from automobility as the dominant organising principle of urban space.

As part of a larger transformation strategy, the *Gåsepigen* redevelopment aligns with the principles of *Parkeringspolitik 2024* by demonstrating how regulatory frameworks and spatial projects can translate urban sustainability into physical form. The bridge, along with its surrounding public space enhancements, represents more than a mobility improvement; it is a strategic reprogramming of a key urban threshold and a symbol of Aalborg's effort to create a more walkable, green, and integrated city centre.

The Third Limfjord Connection: Connectivity or Contested Sustainability?

The long-standing debate over the proposed Third Limfjord motorway crossing (Andersen and Næss 2010; Næss 2006a, 2011) encapsulates the central dilemma facing contemporary mobility planning: how to reconcile regional connectivity and economic growth with the urgent need to decarbonise transport systems and reduce car dependency.

Aalborg's existing Limfjord infrastructure – namely the E45 motorway, Limfjord Tunnel, and the Limfjordsbroen road bridge – frequently suffers from congestion, particularly during peak hours and holiday travel. Studies show that both crossings have reached maximum capacity for freight and commuter traffic. This congestion has fuelled calls for expanded capacity to

assure reliable freight transport, smoother regional commuting, and sustained economic competitiveness. The Danish Road Directorate has initiated preparatory studies to assess the proposed Third Limfjord Connection precisely to relieve the tunnel, bridge, and adjacent city thoroughfares (Danish Road Directorate 2019). Forecasts by the Danish Road Directorate estimate that the new crossing would reduce traffic on the existing E45 through central Aalborg by approximately 24,000 vehicles per day, representing a 27% decrease in congestion (COWI 2025; DM 2024; Tunnelbuilder n.d.; Vejdirektoratet 2020). Despite its potential to alleviate congestion on existing routes and enhance regional freight and commuter reliability, the proposed Egholm motorway has encountered widespread public resistance. Notably, the civic movement *Nej til Egholmmotorvej* and environmental organisations such as NOAH have voiced strong opposition, citing concerns over biodiversity loss, noise pollution, landscape degradation, and financial cost (Borgerbevægelsen mod en motorvej i Egholmlinjen 2023; NOAH 2021). Situated adjacent to protected landscapes and crossing the island of Egholm, the proposed route raises significant environmental concerns and is seen by critics as undermining Denmark's national climate ambitions. A 2023 public opinion survey reported that over 60 per cent of Aalborg residents preferred alternatives, such as upgrading the existing tunnel infrastructure, while only 28 per cent supported construction of the Egholm line (Borgerbevægelsen mod en motorvej i Egholmlinjen 2023). These responses reflect a broader shift in public sentiment towards recognising the socio-environmental costs of automobility and a desire for increased investment in sustainable and collective mobility systems. As such, public opposition remains a defining feature of the Egholm motorway debate.

Aalborg Municipality has adopted a cautiously supportive position. While acknowledging the regional benefits of improved connectivity, the municipality has called for comprehensive environmental assessments, consideration of multimodal alternatives, and alignment with the goals of *Mobilitet 2040*, its long-term mobility strategy aimed at reducing car dependency and promoting sustainable transport modes (Aalborg Kommune 2019). This position reflects a broader governance dilemma: how to navigate the conflicting imperatives of national infrastructure policy, municipal climate goals, and public opinion.

The Third Limfjord Connection thus illustrates the *implementation politics* of sustainability transitions. At stake is not only the allocation of resources but also the legitimacy of planning itself: who decides, in whose interest, and based on what knowledge and values. The project pits a growth-orientated, infrastructure-heavy vision of mobility against a more integrated, climate-aware approach that prioritises rail, public transit, and active transport.

The Third Limfjord Connection is not merely a question of bridging a fjord; it is a crucible for competing urban futures. It exemplifies the structural entrenchment of automobility within national planning frameworks and the political difficulty of shifting towards post-automobile urbanism. As Aalborg

navigates this contested terrain, the debate serves as a reminder that urban sustainability transitions are as much about power and priorities as they are about technical solutions.

Temporalities of Implementation: Sustainable Mobilities along the Growth Axis?

Aalborg's mobility transition is best understood as an adaptive process unfolding through multiple temporalities of planning, implementation, and political negotiation. The long-standing spatial strategy known as the Growth Axis (*Vækstaksen*) (see Chapter 3) has served as a structuring device for urban expansion, densification, and infrastructural investment – particularly in mobility. It establishes a development corridor stretching from Aalborg Airport and the university in the north, through the central city, to the new hospital and Aalborg East in the south.

From a temporal perspective, the Growth Axis laid the foundation for a series of mobility-led interventions. The earliest major attempt to reconfigure Aalborg's mobility system was the proposed light rail (Letbane), planned from the early 2000s and officially discontinued in 2017. Although never realised, the Letbane corridor left a powerful spatial legacy: it was repurposed into the +BUS system, a Bus Rapid Transit (BRT) line launched in 2023, illustrating Aalborg Municipality's capacity for mobility-orientated adaptation, preserving long-term goals through flexible institutional recalibration in response to evolving financial and political conditions.

Surrounding this transit core, Aalborg implemented a wave of pedestrian and public space transformations. Interventions such as the redesign of Budolfi Plads (completed 2019), the pedestrianisation of Nytorv (completed 2023), and the revitalisation of Kennedy Plads (completed 2023) unfolded over more than a decade. These projects followed a logic of incrementalism, shaped by public consultation, iterative design, and provisional implementation, shifting urban priorities from car-based accessibility to walkability, spatial quality, and urban life.

In parallel, the city's cycling infrastructure developed through a slower, more embedded temporality. Aalborg's *Cykelpolitik 2020* articulated a vision of cycling as both everyday transport and a marker of urban identity. Projects like Kulturbroen added symbolic and functional value to this agenda. These investments accumulated over time, often linked to broader efforts at modal shift and public health, and further anchored the +BUS corridor as a spine of sustainable access.

The implementation of mobility hubs added a new dimension of intermodality. Introduced through *Mobilitet 2040*, these hubs emerged at strategic nodes across the city – especially along the +BUS route – and integrate cycling, public transport, and car-sharing. Their phased rollout illustrates a strategic layering of infrastructure, building upon decades of investment in public and active mobility. Importantly, Aalborg's mobility transition was not confined to the inner city. The regeneration of Aalborg East (Aalborg Øst) exemplifies a peripheral yet strategic

application of sustainable mobility. Following the 2009 decision to locate the new regional hospital in the district, a series of coordinated interventions unfolded: the *City in Between* competition (2011–2012), *Kildeparken 2020*, *Kickstart Tornhøj* (2013–2020), and the autonomous vehicle (AV) pilot (2020–2021). These projects combined spatial integration with technological experimentation. The transformation of Astrupstien into a multimodal spine embedded accessibility and walkability into the district's core. The short-lived but pathbreaking autonomous vehicle trial highlighted Aalborg's willingness to test emerging technologies in real-life conditions, despite legal and infrastructural uncertainties.

Alongside these physical and experimental interventions, Aalborg also introduced new regulatory frameworks. *Parkeringspolitik 2024* reflects a maturing approach to mobility governance, where parking is no longer treated as a passive necessity but as an active spatial planning tool. The policy institutionalises principles such as digital flexibility, differentiated pricing, underground construction, and integration with stormwater management.

At the edge of Aalborg's mobility trajectory lie two speculative projects that embody divergent temporal and political logics. On one hand, the idea of the Stigsborg-Aalborg cycle–pedestrian bridge continues the city's commitment to inter-district connectivity and active mobility across the Limfjord into the newly developing eastern waterfront. On the other hand, the proposed Third Limfjord Connection (Egholm route) – a large-scale motorway crossing supported by national infrastructure plans – remains heavily contested by environmentalists, planners, and residents. While presented by its advocates as essential for regional connectivity and congestion relief, critics view it as fundamentally misaligned with Aalborg's sustainability ambitions: an emblem of the automobility dilemma (Table 7.2).

Table 7.2 Timeline of Key Sustainable Mobility Projects in Aalborg (Elaboration: Enza Lissandrello) ↗

<i>Project/Process</i>	<i>Initial Planning Phase</i>	<i>Key Milestones/ Implementation Phases</i>	<i>Status/Outcome</i>
Light Rail (<i>Lethane</i>)	Early 2000s	Feasibility studies (2013–2015); officially discontinued (2017)	Discontinued; corridor retained in planning frameworks as part of +BUS alignment
+BUS (Bus Rapid Transit)	Conceptualised post-2017	Construction initiated ~2020; launched October 2023	Fully operational; network expansion under preparation for 2025–2026
Budolfi Plads Redevelopment	Public consultation (2010); revised scheme (2015)	Construction completed 2019	Realised; transformed into a multifunctional civic and pedestrian space

(Continued)

Table 7.2 (Continued)

<i>Project/Process</i>	<i>Initial Planning Phase</i>	<i>Key Milestones/ Implementation Phases</i>	<i>Status/Outcome</i>
Nytorv Redesign and Pedestrianisation	Urban design competition (2005)	Implementation 2018–2022; pedestrianisation finalised in 2023	Completed; integrated into expanded central pedestrian network
Kennedy Plads Revitalisation	Local plans adopted 1994 & 2005	Major redesign completed in 2023	Operational multimodal hub; integrated with bus and rail infrastructure
Kulturbroen (Cycling and Pedestrian Bridge)	Planning initiated ~2015	Opened to the public in 2022	Realised; key connector for cross-harbour active mobility
Stigsborg-Aalborg Cycle Bridge (Planned)	Initial concept around 2020	Still in early planning; no adopted local plan	Not yet realised; remains a strategic future link within active mobility network
Mobility Hubs (Mobilitetshubs)	Strategic planning from 2018	Phased rollout initiated ~2020; integrated with +BUS and cycling	Ongoing implementation; emerging intermodal nodes at key urban and suburban sites
Aalborg East Regeneration & AV Pilot	2009 onward (hospital as catalyst)	‘City in Between’ strategy (2011–2012); AV pilot (2020–2021); Kildeparken 2020 & Kickstart Tornhøj (2013–2020)	Mixed outcomes: significant physical regeneration and mobility integration; AV trial concluded, yielding policy and planning insights

Sustainable Mobility and the Contested Politics of Urban Sustainable

Aalborg’s mobility transformation gains sharper analytical clarity when interpreted through the combined logics and theoretical lenses of the *Urban Sustainability Compass*.

The logic of *urgency* has driven policy momentum, particularly under climate and accessibility imperatives. The transition from the light rail (*Lethane*) to the +*BUS* system illustrates how long-term visions adapt under pressure while retaining strategic orientation along the *Growth Axis* (Chapter 3). Yet *urban political ecology* reminds us that urgency may conceal structural inequalities: even low-carbon solutions risk reinforcing spatial disparities when

corridor-based planning privileges central zones. While Aalborg East was integrated into the +BUS system due to the regional hospital, caution is warranted where densification and transit-orientated development become proxies for equity.

Implementation manifests in Aalborg's phased delivery of spatial and mobility interventions, such as the redesign of Budolfi Plads, Kennedy Plads, and the pedestrianisation of Nytorv, as well as the coordinated rollout of mobility hubs. These illustrate the operational dimension of *urban sustainability governance*, where policy coherence and cross-sectoral collaboration translate planning rationalities into material change. Still, implementation always involves choices: which users are prioritised, what modes are supported, and how infrastructure reshapes urban life.

Legitimation operates through discourses and designs that frame mobility as a public good. Projects such as the +BUS, Kulturbroen, and the forthcoming Stigsborg-Aalborg bridge are framed as markers of sustainability, innovation, and civic pride. Yet *phronetic planning* demands attention to how legitimacy is constructed: who participates in these visions, and whose mobility needs are marginalised? The differentiated impacts of *Parkeringspolitik 2024*, particularly for residents in peripheral zones, point to the need for more inclusive planning dialogues.

The logic of *experimentation* is strongly embodied in Aalborg East, where infrastructural regeneration, multimodal design, and the autonomous vehicle (AV) trial intersect. These trials represent *institutional experiments* in navigating uncertainty, testing governance capacity, and probing the boundaries of what counts as sustainable mobility. From a *just sustainability* perspective, however, questions arise about the distribution of benefits and risks: are peripheral areas empowered co-creators of innovation, or simply testing grounds for central agendas?

At the edge of this transition stands the Third Limfjord Connection. Positioned within national infrastructure policy, it exemplifies a persistent automobility dilemma: while the city foregrounds active mobility and decarbonisation, major investments in highway infrastructure risk locking in car dependency and undermining sustainability goals. This contradiction reveals deep tensions along the meaning and the practice of sustainable mobility and different understandings of mobilities, as well as multiple forms of urban sustainability and divergencies between regional growth imaginaries and the local pursuit of integrated, equitable mobility.

Through the lens of sustainable mobility, urban sustainability emerges not as a linear path – not merely 'a given' by infrastructures and strategic corridors – but as a politicised field of practices, meanings, and spatial claims. The *Urban Sustainability Compass*, together with its associated theoretical perspectives, illuminates how values, institutions, and power relations shape mobility transitions on the ground. It fosters critical reflection on what is ultimately at stake – not merely how people move, but how cities prioritise, govern, and sustain just and inclusive urban futures (Figure 7.5).

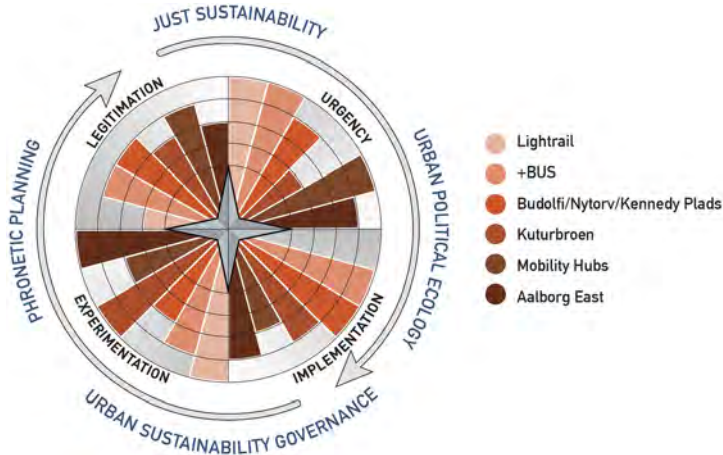


Figure 7.5 The Urban Sustainability Compass Applied to Sustainable Mobility in Aalborg. ♪

(Concept and design: Enza Lissandro; visual elaboration: Alessandra Badami).

Notes

- 1 The *Kollektiv Trafik Forum* is a Danish public transport network that brings together municipalities, regional transport authorities, operators, and planners to promote knowledge sharing and innovation in collective mobility. It serves as a collaborative platform for developing best practices and supporting policy development in sustainable transport across Denmark and Nordic countries.
- 2 *Realdania* is a Danish philanthropic association that supports projects in architecture, planning, and the built environment. Established in 2000 with funds from the former mortgage credit institution *Realkredit Danmark*, it promotes sustainable urban development through partnerships, design competitions, and funding programmes. Its involvement in Aalborg East was instrumental in launching regeneration initiatives and co-funding projects such as *City in Between* (adopted in 2012) and *Kickstart Tornhøj* (in stages of adoption in 2014, 2017, 2018).

References

- Aalborg Kommune. 2002. *Aalborg Midtby*. Aalborg: By- og Landskabsudvalget.
- Aalborg Kommune. 2011. *Norddanmarks Vækstdynamo: Planstrategi 2011*. Aalborg: By- og Landskabsudvalget.
- Aalborg Kommune. 2013a. *Fysisk Vision 2025*. Aalborg: By- og Landskabsudvalget.
- Aalborg Kommune. (2013b). *Kommuneplan 2013 – Tillæg H-019: Hovedstruktur* [Supplement H-019]. Aalborg: Aalborg Kommune.
- Aalborg Kommune. 2014. *Lokalplan 1-2-109: Nordhavnen, Havnegade, Nørresundby Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2015. *Aalborg Letbane: VVM Og MV Miljørapport*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. (2016). *Lokalplan 4-5-102: Nyt bydelscenter ved Tornhøj, Tornhøj*. Aalborg: Aalborg Kommune, By- og Landskabsforvaltningen.

- Aalborg Kommune. 2017a. *Lokalplan 1-1-117: Centerområde, Budolfi Plads, Vingårdsgade, Aalborg Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2017b. *Lokalplan 4-5-103: Boliger Og Institutioner, Venøsundvej Og Tornhøjvej, Tornhøj*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2017c. *Lokalplan 10-010: Buscenter M.M. Nytorv*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2017d. *Planstrategi 2016: Integrerede Løsninger for Vækst, Trivsel Og Det Grønne*. Aalborg: By- og Landskabsforvaltningen. Retrieved from <https://www.aalborg.dk/om-kommunen/politikker-strategier-og-planer/planstrategi>
- Aalborg Kommune. 2018. *1-1-134 BRT-Tracé*. Aalborg: By- og Landskabsforvaltningen. Retrieved from https://dokument.plandata.dk/20_9419180_1540482992939.pdf
- Aalborg Kommune. 2019. *Mobilitet 2040*. Aalborg: By- og Landskabsudvalget. Retrieved from <https://www.aalborg.dk/om-kommunen/politikker-strategier-og-planer/mobilitet-2040>
- Aalborg Kommune. 2020a. *Cykelpolitik 2020*. Aalborg: By- og Landskabsudvalget.
- Aalborg Kommune. 2020b. *Lokalplan 1-1-137: John F. Kennedys Plads, Aalborg Midtby*. Aalborg: By- og Landskabsforvaltningen.
- Aalborg Kommune. 2024. *Parkeringspolitik 2024*. Aalborg: Aalborg Kommune, By og Land. https://www.aalborg.dk/HearingMedia/parkeringspolitik2024_ZtJ1.pdf
- Aalborg Kommune. 2025. *Sygehus Nord Og Gåsepigen*. Retrieved from <https://www.aalborg.dk/om-kommunen/udvikling-og-projekter/udvikling-af-kommunen/sygehus-nord-og-gaasepigen>
- Agyeman, J. 2005. *Sustainable Communities and the Challenge of Environmental Justice*. New York: NYU Press.
- Agyeman, J. 2007. 'Environmental Justice and Sustainability,' pp. 188–205 in *Handbook of Sustainable Development*, edited by G. Atkinson, S. Dietz, E. Neumayer, and M. Agarwala. Cheltenham: Edward Elgar Publishing.
- Anciaes, P., and P. Jones. 2020. 'Transport Policy for Liveability – Valuing the Impacts on Movement, Place, and Society.' *Transportation Research Part A: Policy and Practice* 132:157–73. doi:10.1016/j.tra.2019.11.009
- Andersen, A. J., and P. Næss. 2010. 'Models, Environment and Manipulation: Power and Knowledge Filtering in the Decision-Making Process about the Third Limfjord Crossing.' In M. Cerreta, G. Concilio, & V. Monno (Eds.), *Space is luxury: Selected proceedings of the 24th AESOP annual conference* (pp. 459–477). Naples: Federico II University.
- Bertolini, L. 2020. 'From 'Streets for Traffic' to 'Streets for People': Can Street Experiments Transform Urban Mobility?' *Transport Reviews* 40(6):734–53. doi:10.1080/01441647.2020.1761907
- Bevir, M., and R. Rhodes. 2006. *Governance Stories*. London: Routledge.
- Borgerbevægelsen mod en motorvej i Egholmlinjen. 2023. 'Nej Til Egholmmotorvej.' Retrieved from <https://nejtilegholmmotorvej.dk/>
- Bulkeley, H., V. Castán Broto, and A. Maassen. 2014. 'Low-Carbon Transitions and the Reconfiguration of Urban Infrastructure.' *Urban Studies* 51(7):1471–86. doi: 10.1177/0042098013500089
- Christiansen, H., and M. K. Andersen. 2024. *Transportvaneundersøgelsen 2023: National Travel Survey – Denmark*. Kgs. Lyngby: DTU Management, Danmarks Tekniske Universitet.
- COWI. 2025. 'COWI to Advise the Danish Road Directorate on the Third Limfjord Connection.' Retrieved from <https://www.cowi.com/news-and-press/news/2025/cowi-to-advise-on-the-third-limfjord>
- Cresswell, T. 2006. *On the Move: Mobility in the Modern Western World*. London: Taylor & Francis.
- Cresswell, T. 2025. 'Mobility Matters: Movement, Meaning, and Practice in the Context of Power.' in *Making Geography Matter: The Past and Present of a Changing Discipline*, edited by N. Castree, T. Barnes, and J. Salmond. London: Routledge.

- Danish Road Directorate. 2019. *Limfjord Tunnel Assessment and Retrofitting* [Technical report]. Copenhagen: Danish Road Directorate. <https://www.trm.dk/media/tdxldt25/teknisk-rapport-limfjord.pdf>
- DM. 2024. *Danmarks Dyreste Motorvej Får Grønt Lys: En 20 km Lang Motorvej Vest Om Aalborg Er Vedtaget – Forventes Klar i Begyndelsen Af 2030'erne*. FDM. Retrieved from <https://fdm.dk/nyheder/trafik/2024-05-danmarks-dyreste-motorvej-faar-groent-lys>
- EFFEKT Arkitekter ApS; Kærsgaard & Andersen A/S; & SLA A/S. 2014. *Second Phase of Kildeparken 2020.: Renovation and transformation proposal for family flats, blocks, patio houses, and open spaces in Kildeparken, Aalborg*. EFFEKT Arkitekter.
- European Commission. 2023. 'New European Bauhaus Prizes and European Urban Initiative Call: Meet the Winners.' Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3451
- Fischer, F., and J. Forester. 1993. *The Argumentative Turn in Policy Analysis and Planning*. Durham: Duke University Press.
- Fischer, F., and H. Gottweis. 2013. 'The Argumentative Turn in Public Policy Revisited: Twenty Years Later.' *Critical Policy Studies* 7(4):425–33. doi:10.1080/19460171.2013.851164
- Flyvbjerg, B. 1998. *Rationality and Power: Democracy in Practice*. Chicago: University of Chicago Press.
- Flyvbjerg, B. 2002. 'Bringing Power to Planning Research.' *Journal of Planning Education and Research* 21(4):353–66. doi:10.1177/0739456X0202100401
- Folketinget. (2017). *BRT-løsning i Aalborg*. Folketinget (The Danish Parliament). <https://www.ft.dk/>
- Freudental-Pedersen, M. 2020. 'Sustainable Urban Futures from Transportation and Planning to Networked Urban Mobilities.' *Transportation Research Part D: Transport and Environment* 82:102310.
- Geels, F. W. 2005. 'The Dynamics of Transitions in Socio-Technical Systems: A Multi-Level Analysis of the Transition Pathway from Horse-Drawn Carriages to Automobiles (1860–1930).' *Technology Analysis & Strategic Management* 17(4):445–76. doi:10.1080/09537320500357319
- Hajer, M., and W. Versteeg. 2005. 'Performing Governance through Networks.' *European Political Science* 4(3):340–47. doi:10.1057/palgrave.eps.2210034
- Hanson, S. 2010. 'Gender and Mobility: New Approaches for Informing Sustainability.' *Gender, Place & Culture* 17(1):5–23. doi:10.1080/09663690903498225
- Heynen, N., M. Kaika, and E. Swyngedouw. 2006. 'Urban Political Ecology: Politicizing the Production of Urban Natures.' In N. Heynen, M. Kaika, & E. Swyngedouw (Eds.), *In The Nature Of Cities: Urban Political Ecology And The Politics Of Urban Metabolism* (pp. 16–35). London: Routledge.
- Holo/Let's Holo. 2021, December 21. 'Aalborg East: First Autonomous Mini-Bus on the Roads in Denmark.' Holo. <https://www.letsholo.com/aalborg-east>
- Hölscher, K., and K. Frantzeskaki. 2021. 'Perspectives on Urban Transformation Research: Transformations in, of, and by Cities.' *Urban Transformations* 3(1):2. doi:10.1186/s42854-021-00019-z
- Hook, H., D. Durán-Rodas, S. Jamal, and T. Schwanen. 2025. 'Evaluating Initiatives to Improve Transport Justice.' *Transportation Research Part D: Transport and Environment* 142:104719. doi:10.1016/j.trd.2025.104719
- Hoyer, K. G. 1999. 'Sustainable Mobility: The Concept and Its Implications.' Doctoral dissertation, Institute of Environment, Technology and Society, Roskilde University Centre.
- Jensen, O. B. 2009. 'Flows of Meaning, Cultures of Movements – Urban Mobility as Meaningful Everyday Life Practice.' *Mobilities* 4(1):139–58. doi:10.1080/17450100802658002

- Jensen, O. B., I.-T. Comăniță, F. M. L. Heinisch, L. V. Jensen, N. B. Nielsen, and L. A. C. Posingis. 2023. 'Willingness to Walk - Pedestrianism in the City of Aalborg, Denmark.' *Applied Mobilities* 1–18. doi:10.1080/23800127.2023.2241312
- Jensen, O. B., and D. B. Lanng. 2020. *Mobilities Design: Urban Design for Mobile Situations*. London: Routledge.
- Kollektiv Trafik Forum. 2025. 'Passagertal: Plusbussen i Aalborg er populær.' Retrieved from <https://www.kollektivtrafik.dk/plusbussen-i-aalborg-er-populaer/3506>
- Kristensen, J. P., and S. Marshall. 1999. 'Mobility Management to Reduce Travel: The Case of Aalborg.' *Built Environment* (1978-).
- Kveladze, I., P. R. Gøeg, and N. Agerholm. 2021. 'Understanding Mobility of Aalborg Commuters: A Case Study with a Floating Car Dataset.' in In A. Basiri, G. Gartner, & H. Huang (Eds.) *LBS 2021: Proceedings of the 16th International Conference on Location Based Services*, pp. 149–54 Springer. an
- Lanng, D. B., M. Vestergaard, R. Mallng, A. J. Andersen, and J. Andersen. 2021. *Fodgængermobilitet & Bykvalitet - Mobilitetsdesign i Aalborg Midtby*. Aalborg (Arkitektur & Design, Vol. 118). Institut for Arkitektur og Medieteknologi, Aalborg Universitet. 62 s.
- Lissandrello, E. 2017. 'Let People Move! The Diverse Planning Paradigm of The 'Shared Spaces'.' in *Experiencing Networked Urban Mobilities: Practices, Flows, Methods*, edited by M. Freudendal-Pedersen, K. Hartmann-Petersen, and E. L. Perez Fjalland. London: Routledge.
- Lissandrello, E. 2025. 'Power and Knowledge: The Legacy of Educating Professional Planners.' In N. Heynen, M. Kaika, & E. Swyngedouw (Eds.), *In The Nature Of Cities: Urban Political Ecology And The Politics Of Urban Metabolism* (pp. 16–35). London: Routledge.
- Lissandrello, E., R. Hrelja, A. Tennøy, and T. Richardson. 2017. 'Three Performativities of Innovation in Public Transport Planning.' *International Planning Studies* 22(2): 99–113. doi:10.1080/13563475.2016.1196579
- Lokalredaktionen. 2024. 'Danmarks Længste Og Grønneste Bus Har Fødselsdag.' *LigeHer.Nu*. Retrieved from <https://ligeher.nu/aalborg/nyheder/livet-her/danmarks-laengste-og-groenneste-bus-har-foedselsdag/5241482>
- Manderscheid, K. 2014. 'Criticising the Solitary Mobile Subject: Researching Relational Mobilities and Reflecting on Mobile Methods.' *Mobilities* 9(2):188–219. doi:10.1080/17450101.2013.830406
- Mäntysalo, R., K. Olesen, and K. Granqvist. 2020. 'Artefactual Anchoring' of Strategic Spatial Planning as Persuasive Storytelling.' *Planning Theory* 19(3):285–305. doi:10.1177/1473095219893002
- Midttrafik. 2022. 'Aarhus Letbane: Erfaringer Og Evaluering.' <https://www.midttrafik.dk>
- Monstadt, J., J. Rutherford, and O. Coutard. 2025. 'Infrastructures as Urban Solutions? Critical Perspectives on Transformative Socio-Technical Change.' *Urban Studies* 62(9):1709–30. doi:10.1177/00420980251339430
- Næss, P. 2006a. 'Cost-Benefit Analyses of Transportation Investments.' *Journal of Critical Realism* 5(1):32–60. doi:10.1558/jocr.v5i1.32
- Næss, P. 2006b. *Urban Structure Matters: Residential Location, Car Dependence and Travel Behaviour*. London: Routledge.
- Næss, P. 2011. 'The Third Limfjord Crossing: A Case of Pessimism Bias and Knowledge Filtering.' *Transport Reviews* 31(2):231–49. doi:10.1080/01441647.2010.534569
- Næss, P. 2012. 'Urban Form and Travel Behavior: Experience from a Nordic Context.' *Journal of Transport and Land Use* 5(2). doi:10.5198/jtlu.v5i2.314
- NOAH. 2021. 'Nej Tak Til Ny Motorvej over Egholm Ved Aalborg.' <https://noah.dk/nyheder/nej-tak-til-ny-motorvej-over-egholm-ved-aalborg>
- Olesen, K. 2020. 'Infrastructure Imaginaries: The Politics of Light Rail Projects in the Age of Neoliberalism.' *Urban Studies* 57(9):1811–26. doi:10.1177/0042098019853502

- Olesen, M. 2012. 'Light Rails to Sustainable Mobility?' Aalborg University Dissertation, Aalborg.
- Peattie, L. 2001. 'Theorizing Planning: Some Comments on Flyvbjerg's Rationality and Power.' *International Planning Studies* 6(3):257–62. doi:10.1080/713672898
- Regeringen. 2015. 'Finanslov for Finansåret 2015.' <https://fm.dk>
- Realdania. 2025. *Evaluering af Kickstart Forstaden 2.0: Læring og erfaringer fra realiseringsprojektet Kickstart Tornhøj i Aalborg Øst*. København: Realdania
- Ribeiro, G., Bisgaard, H., & Jensen, E. H. 2025, Spring. Der er brug for et paradigmeskifte. *ByPlan Nyt* (1): 22–23. Retrieved from <https://byplanlab.dk/da/magazine/byplan-nyt-1-2025>
- Rose, J., Englund Thomsen, K., et al. (2019). *Kildeparken, Aalborg (Denmark): IEA EBC Annex 75 – Cost-Effective Building Renovation at District Level – Combining Energy Efficiency & Renewables* [Case study report]. London: International Energy Agency Energy in Buildings and Communities Programme. https://annex75.iea-ebc.org/Data/publications/Annex75_STC_WPC1_Kildeparken_Denmark.pdf
- Rui, J., and F. Othengrafen. 2023. 'Examining the Role of Innovative Streets in Enhancing Urban Mobility and Livability for Sustainable Urban Transition: A Review.' *Sustainability* 15(7):5709. doi:10.3390/su15075709
- Schwanen, T. 2018. 'Towards Decolonised Knowledge about Transport.' *Palgrave Communications* 4(1):79. doi:10.1057/s41599-018-0130-8
- Sheller, M. 2017. 'From Spatial Turn to Mobilities Turn.' *Current Sociology* 65(4):623–39. doi:10.1177/0011392117697463
- Sheller, M. 2018. *Mobility Justice: The Politics of Movement in an Age of Extremes*. London & New York: Verso Books.
- Sheller, M. 2020. 'Mobility Justice in Urban Studies.' pp. 13–22 in M. Freudendal-Pedersen & K. Hartmann-Petersen (Eds.), *Handbook of Urban Mobilities*. London: Routledge.
- Sheller, M., and J. Urry. 2006. 'The New Mobilities Paradigm.' *Environment and Planning A: Economy and Space* 38(2):207–26. doi:10.1068/a37268
- Smith, A., A. Stirling, and F. Berkhout. 2005. 'The Governance of Sustainable Socio-Technical Transitions.' *Research Policy* 34(10):1491–1510.
- Transport- og Energiministeriet. 2007. Flere cykler på sikker vej i staten: Transport- og Energiministeriets cykelstrategi, maj 2007. København: Transport- og Energiministeriet. ISBN 978-87-91013-29-4.
- Transportministeriet. 2014. *Danmark – Op På Cyklen! Den Nationale Cykelstrategi*. Vejdirektoratet.
- Transport-, Bygnings- og Boligministeriet. 2014. *Danmark – On Your Bike! A New National Bicycle Strategy [PDF]*. <https://www.trm.dk/media/qkfpoagy/engelsk-cykelstrategi-til-web.pdf>
- Transportministeriet. 2017. *Redegørelse Om Status for Letbaneprojekter i Danmark*. København: Transport-, Bygnings- Og Boligministeriet. <https://www.trm.dk>
- Transportministeriet. 2021, June 28. *Aftale om Infrastrukturplan 2035* [Agreement on Infrastructure Plan 2035]. Transportministeriet. <https://www.trm.dk/temaer/aftale-om-infrastrukturplan-2035>
- Tunnelbuilder. n.d. 'Denmark Tunnel News – North Jutland DK/35: 20 km Motorway via Egholm.' [tunnelbuilder.com](https://tunnelbuilder.com/Archive/Projects/Denmark/dk35-Motorway-2.aspx). <https://tunnelbuilder.com/Archive/Projects/Denmark/dk35-Motorway-2.aspx>
- Urban Mobility Observatory. 2021. *SmartBus in Aalborg: Automated Vehicle for Social Cohesion and Inclusion*. European Commission. https://urban-mobility-observatory.transport.ec.europa.eu/resources/case-studies/smartbus-aalborg-automated-vehicle-social-cohesion-and-inclusion_en
- Urry, J. 2007. *Mobilities*. Cambridge: Polity Press.
- Uteng, T. P., and K. Lucas. 2018. *Urban Mobilities in the Global South*. London: Routledge.

- Vejdirektoratet. 2020. 'Egholmlinjen: 3. Limfjordsforbindelse via Egholm.' <https://www.vejdirektoratet.dk/vvm/limfjorden/projektet/egholmlinjen>
- von Schönfeld, K. C., and L. Bertolini. 2016. 'Urban Streets between Public Space and Mobility.' *Transportation Research Procedia* 19:300–302. doi:10.1016/j.trpro.2016.12.089
- Wagenaar, H. 2015. 'Transforming Perspectives: The Critical Functions of Interpretive Policy Analysis.' pp. 422–40 in F. Fischer, D. Torgerson, A. Durnová, & M. Orsini (Eds.) *Handbook of Critical Policy Studies*. Cheltenham & Northampton, MA: Edward Elgar Publishing.
- Yanow, D. 2000. *Conducting Interpretive Policy Analysis*. Thousand Oaks, CA: Sage.

8 Conclusion

Why Aalborg Still Matters? Urban Sustainability in the Making

Enza Lissandrello and Alessandra Badami

Introduction: Why Aalborg Still Matters?

Urban sustainability remains a defining challenge of our time: conceptually rich, yet operationally contested; globally urgent, yet locally embedded. While the Sustainable Development Goals, particularly SDG 11 on sustainable cities and communities (Chapter 3), have consolidated a shared vocabulary around urban sustainability, the pathways through which these ambitions are interpreted, negotiated, and institutionalised vary significantly across local contexts (Bulkeley and Betsill 2013; United Nations 2015). Aalborg's development trajectory offers a unique long-term perspective on the situated enactment of sustainability through planning, design, and governance. From its post-industrial restructuring in the 1980s to its pioneering role in the Aalborg Charter (ICLEI 1994) and subsequent Aalborg Commitments (ICLEI 2004), the city has emerged as both a laboratory and protagonist in advancing sustainability-orientated planning within the European landscape (Eckerberg and Joas 2004).

This chapter synthesises the book's central insights. Rather than providing a prescriptive model of sustainable urbanism, it focuses on the importance of planning practices that are context-sensitive, historically grounded, and reflexive, capable of navigating the tensions and dilemmas that inevitably shape urban transformation. Aalborg's experience illustrates that urban sustainability is not a fixed endpoint but an evolving, contested process marked by negotiations, uncertainty, and the interplay of multiple rationalities (Flyvbjerg 1998; Hajer and Wagenaar 2003; Healey 1998). The city's long-term engagement with municipal innovation, civic participation, and planning experimentation underscores the fact that sustainability is co-produced through both institutional continuity and critical junctures, during which values and strategies are reconfigured in response to shifting environmental, political, and social conditions.

Building on the *Urban Sustainability Compass* introduced in Chapter 1, this concluding chapter mobilises the four interpretive logics – *urgency*, *legitimation*, *implementation*, and *experimentation* – not as normative templates but as heuristic tools for interpreting Aalborg's planning rationalities over time. These logics help illuminate how diverse thematic areas and planning domains – historical foundation, strategic planning, urban identity transformation (Aalborg waterfront), green infrastructures and public spaces (Nørresundby waterfront),

urban ecologies and blue-green corridors, and sustainable mobility – have been shaped by the competing demands of action, legitimacy, inclusion, and innovation. In doing so, the chapter contributes to a view of planning as a situated, iterative, and phronetic practice; one that embraces uncertainty, ethical judgement, and practical reasoning (Brown and Vergragt 2016; Innes and Booher 2010; Sandercock and Lyssiotis 2003).

As part of this reflection, the chapter also reviews the preceding empirical chapters' thematic areas in the light of the *Urban Sustainability Compass* as a synthesis that shows that the diverse projects analysed in this book intersected with and informed a broader interpretive and reflexive framework across time and space.

The chapter closes by critically engaging with two governance instruments that reflect Aalborg's evolving urban sustainability ambitions towards the green transition: the *Aalborg Climate Plan 2021–2030* and the recently launched *Aalborg Conditions* (ICLEI 2024). These initiatives set a forward-looking agenda that links climate imperatives with questions of spatial justice, democratic legitimacy, and institutional resilience. The *Climate Plan* defines tangible mitigation and adaptation goals, including a 70% reduction in CO₂ emissions by 2030 compared to 1990 levels, while promoting a collaborative, cross-sectoral approach to sustainable transition. The *Aalborg Conditions* provide a renewed normative orientation, which positions cities as agents of ecological and democratic renewal within increasingly complex global-local dynamics. These instruments signal a shift towards planning cultures that are more inclusive, anticipatory, and ethically grounded. Reflecting a reconfiguration of urban governance that moves beyond static models of sustainability to embrace relational, processual, and co-produced futures, the chapter concludes that the capacity to govern urban futures lies not only in policy tools or visionary strategies of urban sustainability but in the everyday practices, alliances, and institutional cultures of *urban sustainability in the making*.

Structure of the Chapter. The Chapter is organised into four sections. It begins with an introduction to the chapter's aims and guiding research question, followed by a methodological and theoretical reflection grounded in the *Urban Sustainability Compass* interpretive logics and theoretical perspectives. The core of the chapter revisits the preceding chapters through their six thematic lenses – historical foundation, strategic planning, urban identity transformation (Aalborg waterfront), green infrastructures and public spaces (Nørresundby waterfront), urban ecologies and blue-green corridors, and sustainable mobility – highlighting how planning logics evolve across these domains. The final section looks forward, engaging Aalborg's Climate Plan 2021–2030 and the 2024 Aalborg Conditions as expressions of a paradigm shift towards more adaptive, inclusive, and democratic planning futures.

Methodology and Analytical Approach

The concluding synthesis presented in this chapter adopts a *reflexive and interpretive methodological orientation*, which is consistent with the epistemological

commitments that have guided the preceding chapters. Rather than providing a linear evaluation or comparative assessment of Aalborg's sustainability trajectory, this chapter constructs a *situated narrative*, one that seeks to understand how projects, processes, and planning practices evolve over time, across policy domains, and in response to shifting institutional and socio-political conditions. In doing so, it aligns with an understanding of planning that brings *phronesis*, i.e., practical wisdom, to the fore as essential for navigating the complexities of sustainability transitions (Flyvbjerg 2001).

This synthesis is guided by the *Urban Sustainability Compass*, which is a conceptual framework that has structured the book's analytical approach. The Compass does not prescribe ideal outcomes but instead reveals the *co-existence and interaction* of four interpretive planning logics, each of which shapes how urban sustainability is problematised, governed, and spatialised. These logics correspond to distinct forms of reasoning, institutional responses, and spatial imaginaries. Their interplay allows a dynamic, context-sensitive understanding of how urban sustainability emerges not through universal models or linear progressions but through the contingent alignment of values, capacities, and practices situated in a specific place and time.

Methodologically, the chapter draws on qualitative interpretation across multiple empirical and historical layers. Each chapter of the book includes archival research, planning document analysis, spatial interpretation, policy genealogy, interpretive case reconstruction, and reflexive engagement with planners and municipal actors. Rather than reducing these approaches to a single explanatory model, the synthesis respects the *plurality of sources, scales, and temporalities* while drawing connections that illuminate broader patterns and cross-cutting themes.

This integrative process draws on what Innes and Booher (2010) term *collaborative rationality*, which is a planning mode that is grounded in dialogue, contextual sensitivity, and adaptive judgement. The aim of this chapter is not to homogenise the chapters' findings but to enable a *cross-domain insight* and weave connections across the book's six thematic areas:

historical foundation, strategic planning, urban identity transformation (Aalborg waterfront), green infrastructures and public spaces (Nørresundby waterfront), urban ecologies and blue-green corridors, and sustainable mobility. These themes are not discrete categories but evolving fields of interaction through which interpretive logics and theoretical lenses intersect and unfold.

Furthermore, this approach recognises the performative and political dimensions of planning knowledge (Healey 2013; Sandercock 2004). Planning is not merely a technical or managerial task; it is a *meaning-making practice* embedded in cultural narratives, contested values, and situated knowledge. As such, the chapter embraces *storytelling, synthesis, and interpretive reflection* as legitimate and necessary scholarly tools, particularly when grappling with complexity, institutional ambiguity, and evolving normative agendas.

Rather than delivering a final verdict or normative blueprint, the chapter provides a *critical reflection on Aalborg's trajectory as a prism through which broader debates on urban sustainability can be reinterpreted*. It positions urban sustainability not as a predetermined goal but as an *open-ended, democratic, and place-based process* which is shaped by negotiation, ethical engagement, and the evolving cultures of governance through which urban transformations are imagined, contested, and materialised.

Revisiting the Compass: Urban Sustainability Across the Chapters

This book finds that urban sustainability is enacted through situated planning and design practices, which are shaped by specific spatial, temporal, and institutional contexts. Rather than presenting projects as isolated examples or prescriptive models, the analysis has adopted an interpretive methodology to examine how urban sustainability is narrated, negotiated, and reshaped over time. Each empirical project serves as an analytical lens, which reveals that urban sustainability materialises through institutional adaptation, socio-political conflict, and iterative learning.

A consistent insight across the chapters is that urban sustainability in Aalborg has not followed a linear or technocratic trajectory. Instead, it unfolds as a multi-layered and contested process shaped by evolving constellations of planning rationalities. These are captured through the heuristic of the *Urban Sustainability Compass* in **Chapter 1**. The Compass' logics do not operate in isolation but intersect across projects and processes, thereby reflecting the multiplicity of rationales and strategic orientations that characterise real-world planning. Complementing this framework are four theoretical perspectives (Chapter 1), which offer a grounded and plural lens for interpreting the dilemmas of climate action, spatial justice, and institutional change.

The analysis has been structured around interrelated thematic domains, each corresponding to one of the book's empirical chapters.

Chapter 2 reconstructs Aalborg's development from its pre-industrial roots to the pivotal launch of the Aalborg Charter in 1994. Here, the logic of *urgency* predominates as industrial decline, ecological degradation, and socio-economic fragmentation compelled the municipality to reimagine its development trajectory. Through the lens of *Urban Political Ecology* (Swyngedouw and Heynen 2003), the chapter highlights the fact that systemic crises serve as catalysts for new institutional configurations. **Chapter 3** analyses the rise of strategic spatial planning in the early 2000s, when the logic of *legitimation* became central. Through instruments like the *Fjordkatalog* and *Bykatalog*, the city embedded sustainability in policy frameworks in alignment with broader European and global agendas. *Urban Sustainability Governance* (Smith and Wiek 2012) provides a conceptual lens for understanding how planning visions are operationalised in a sequence of planning strategies, contested, interpreted and symbolised within evolving institutional settings.

Chapter 4 focuses on post-industrial regeneration and traces the long-term transformation of Aalborg's central waterfront. Since the late 1980s, this area

has undergone a significant reconfiguration through the adaptive reuse of industrial zones such as Ø-Gadekvarteret, Spritten, and Nordkraft; the redesign of central seafront spaces like Jomfru Ane Parken and Toldbod Plads; and the development of peri-urban recreational areas including Vestre Fjordpark. The dominant logic in this transformation is *implementation*, which is supported by large-scale land-use planning and infrastructural investment, while elements of experimentation appear in culture-led regeneration strategies. This chapter draws on *Phronetic Planning* (Flyvbjerg 2004) to illustrate how planners have responded to challenges—such as the early missteps in the Vestre Havnepromenade project—through context-sensitive judgement and iterative recalibration.

Chapter 5 focuses on public space design and accessibility and the transformation of the Nørresundby waterfront. The removal of industrial activities and railway infrastructure opened up new spatial opportunities for reconnecting the city with its northern shoreline. Through extensive environmental remediation and participatory planning, projects such as Lindholm Strandpark and the early development of Stigsborg enabled the reactivation of formerly inaccessible waterfronts. Here, the logics of implementation and legitimation intersect as new governance coalitions emerge to institutionalise climate adaptation and public access. Informed by *Just Sustainability* (Agyeman 2008), this chapter shows that equitable access, heritage reuse, and environmental justice are embedded in these complex spaces of urban transformation.

Chapter 6 expands the analysis to urban ecology and finds that ecological functions and values are increasingly integrated into Aalborg's planning frameworks. Projects such as Karolinelund, Godsbanearælet, Gabriel District, and Eternitten reveal that nature-based solutions and green infrastructure are deployed not only for environmental remediation but also to support new social imaginaries and urban narratives. The daylighting of the Østerå River stands out as a landmark initiative that reconnects fragmented ecologies, enhances hydrological resilience, and symbolically repositions nature within the city's evolving identity. The dominant logics at play are *experimentation* and *legitimation*, interpreted through the lenses of *Urban Political Ecology* and *Just Sustainability*. These cases underscore the fact that nature is both a site of governance and a contested socio-political terrain which shapes and is shaped by institutional practices and public discourse.

Chapter 7 introduces sustainable mobility as a structural backbone of urban sustainability through multiple policies and interventions in Aalborg. The chapter explores the strategic reconfiguration of the city's transport system to urban transformation, including the shift from the initially proposed light rail to the implementation of the +BUS Bus Rapid Transit network and investments in active mobility infrastructures such as Kulturbroen and the pedestrianisation of Kennedy Plads, as well as the rollout of experimental trials such as the autonomous vehicle testing in Aalborg East. The logics of *urgency* and *implementation*, which are driven by climate targets and the need to improve spatial accessibility, are prominent here. *Experimentation* is also evident, particularly in the use of pilot schemes and adaptive governance approaches. Drawing on

Urban Sustainability Governance and *Phronetic Planning*, the analysis shows that planners navigate tensions around automobility, spatial equity, and policy coordination. Importantly, the chapter also integrates the case of Aalborg East and the Kildeparken neighbourhood, where the transformation of the mobility spine was the driver for connectivity, public space renewal, and housing diversity being leveraged to overcome peripheral marginalisation. Mobilities reinforce the relevance of *Just Sustainability* and collaborative planning in addressing long-standing inequalities through integrated transport strategies and the remaining challenges with automobility.

Beyond these thematic domains, the book's interpretive logics introduced with the *Urban Sustainability Compass* framework in **Chapter 1** offer a combined dynamic and often overlapping constellations of emerging issues through the Aalborg case. *Urgency* dominated in the 1990s as the city needed to respond to post-industrial collapse; legitimisation defined the strategic planning wave of the early 2000s; implementation intensified in the 2010s as policy translated into large-scale projects; and experimentation has become increasingly prominent in recent years, reflecting institutional innovation, co-creation, and adaptive governance. The theoretical pillars reinforce these patterns: *Urban Political Ecology* uncovers the socio-material entanglements of nature and power; *Just Sustainability* brings procedural and distributive justice to the fore; *Urban Sustainability Governance* reveals the mechanics of multi-scalar coordination; and *Phronetic Planning* highlights the practical wisdom needed to navigate value conflicts and uncertainty.

Across the chapters, *Urban Sustainability Compass* Figure 8.1 serves not as a blueprint but as a frame for revealing the underlying rationalities, trade-offs,

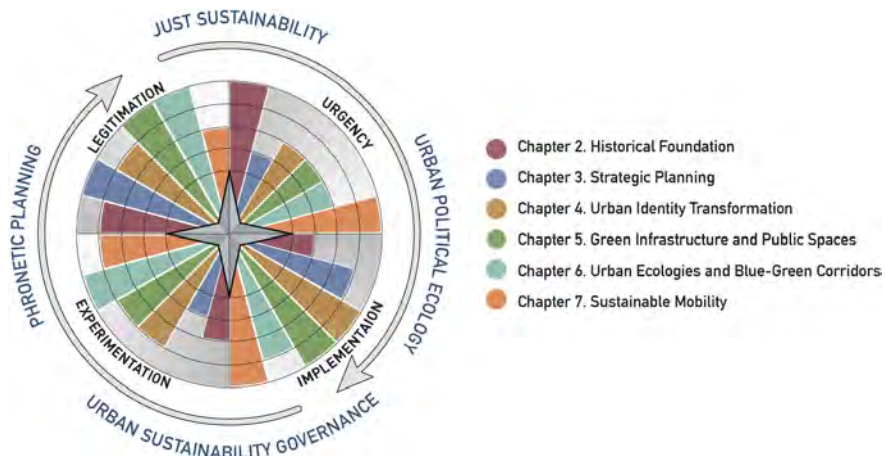


Figure 8.1 The Urban Sustainability Compass in Aalborg. ↵

(Concept and design: Enza Lissandrello; visual elaboration: Alessandra Badami).

Table 8.1 Chapters, Themes, and Orientations of Urban Sustainability in Aalborg
(Elaboration: Enza Lissandrello) ↱

Chapter/Theme	Orientations of Urban Sustainability
Chapter 2 Historical foundations	Crisis as catalyst: from industrial decline to urban sustainability frameworks
Chapter 3 Strategic planning	Institutionalising sustainability: aligning local visions with global agendas
Chapter 4 Urban identity transformation (Aalborg Waterfront)	Learning-by-doing: adaptive reuse and culture-led revitalisation in transforming urban identity
Chapter 5 Green infrastructure and public space (Nørresundby waterfront)	Regenerating post-industrial landscapes: equitable access and iterative design of green public spaces
Chapter 6 Urban ecologies and blue- green corridors	Nature as infrastructure: environmental restoration as symbolic and functional transformation
Chapter 7 Sustainable mobility and storytelling	Mobility as equity and integration: reconfiguring infrastructure to connect places and people

and strategic shifts that shape urban change. Through this lens, Aalborg becomes more than a case: it becomes a living laboratory for understanding how urban sustainability is made and remade Table 8.1.

Reconfiguring the Future: Climate Governance and Emerging Conditions for Urban Sustainability

As Aalborg continues to position itself at the forefront of sustainable urbanism, the city’s most recent climate and environmental initiatives open new trajectories for rethinking the future. Notably, the *Climate Plan 2021–2030* and the *Aalborg Conditions* (ICLEI, 2024) represent more than just policy updates; they embody a deepening of Aalborg’s long-term commitment to context-sensitive, experimental, and democratically anchored sustainability governance. Rather than constituting a departure from earlier strategies, these frameworks evolve the dynamics traced throughout this book, reframing urban sustainability around collaborative governance, intersectoral alignment, and territorial justice.

The Climate Plan 2021–2030

Aalborg’s Climate Plan 2021–2030 represents one of the most ambitious and integrative urban sustainability strategies in Denmark. More than just a compliance exercise, the plan reflects an evolving governance paradigm that bridges national mandates, local innovation, and citizens’ collaboration to advance a just and adaptive urban transition under conditions of accelerating climate urgency.

The plan is anchored in Denmark's multi-scalar climate governance architecture. Nationally, the *Danish Climate Act* (Klimaloven, LBK nr. 962 af 26/06/2023 n.d.) mandates a 70% reduction in greenhouse gas emissions by 2030 and climate neutrality by 2050 and requires municipalities to play an active role in implementation. The *Danish Planning Act* (Planloven, LBK nr. 1157 af 01/07/2020) integrates climate adaptation into strategic spatial and land-use planning. Complementary sectoral legislation, such as the Environmental Protection Act and Water Sector Act, establishes the institutional tools to manage pollution, water, and ecological infrastructure. These laws form a nested policy framework that connects EU directives, national climate goals, and local action.

Aalborg's Climate Plan serves as the local articulation of this framework. Structured around five interdependent fields – *energy, mobility, biodiversity, land use, and circular economy* – the plan charts a path towards net-zero emissions by 2050 while strengthening climate resilience and promoting green economic transformation. It is conceived not as a static policy but as a *living document* which evolves through monitoring, feedback, and co-creation. The municipality explicitly recognises the fact that climate action requires not only technical solutions but also behavioural change, institutional reflexivity, and enduring collaboration.

In the *energy domain*, Aalborg has partnered with utilities and industries to decarbonise the regional energy system. Carbon capture technologies are being tested at Nordværk I/S waste-to-energy facilities, while surplus heat from industrial actors like Aalborg Portland is integrated into the district heating grid. New solar and wind installations on municipal land complement this transition. These projects illustrate the fact that sustainability is co-produced through multi-actor systems, thereby reflecting both symbolic and infrastructural transformations.

On the adaptation front, the *Climate Adaptation Plan* operationalises risk-based planning. Legally binding elevation standards and hydrological models are used to regulate new developments, particularly in low-lying districts like Vestbyen. *No-build zones* now apply in areas exposed to future flooding and groundwater saturation. The separation of stormwater from wastewater is underway in legacy neighbourhoods to increase climate resilience and water system integrity.

Ecological integration is pursued through the *Rig Natur* strategy (Rich Nature Strategy), which restores urban-nature connectivity. Projects like the daylighting of the Østerå stream and rewilding in Karolinelund (Chapter 6) express this agenda, blending ecological, aesthetic, and social functions. Peatland restoration, biogas from agricultural waste, and low-carbon cultivation practices further extend municipal responsibility into peri-urban and rural contexts.

Circular economy principles are increasingly embedded in municipal operations. Food waste reduction is being piloted in public institutions, and procurement guidelines prioritise sustainable, low-emission supply chains. These efforts reduce Aalborg's material footprint while diffusing sustainability into everyday governance practices.

Crucially, Aalborg's climate governance emphasises *democratic legitimacy and co-ownership*. The *Climate Alliance Aalborg* unites businesses, housing associations, civil society, and residents in defining and monitoring climate actions. The *Youth Climate Council* institutionalises intergenerational dialogue, giving young people a voice in municipal planning. These platforms go beyond participatory formalities to cultivate civic trust, accountability, and distributed responsibility.

Through this lens, the plan activates all four interpretive logics of the *Urban Sustainability Compass*. The *logic of urgency* is evident in the rapid deployment of emission-reduction technologies and adaptive zoning. *Implementation* is operationalised through legal instruments, planning tools, and project coordination. *Legitimation* is pursued via inclusive governance and transparent decision-making, while *experimentation* takes shape through pilot projects, feedback loops, and a willingness to adjust trajectories as new knowledge emerges.

The plan also aligns with the book's four theoretical perspectives. *Urban Political Ecology* reveals that infrastructural and ecological interventions reshape socio-material relations, especially in sectors like waste, energy, and water. *Just Sustainability* is reflected in equitable participation and spatial justice efforts, especially through alliances and youth engagement. *Urban Sustainability Governance* is visible in the coordination of actors, policy fields, and institutional mandates. Finally, *Phronetic Planning* surfaces in the city's emphasis on practical wisdom, ethical reasoning, and situated judgement under uncertainty.

The Aalborg Conditions 2024

Aalborg was selected as the host city for the *European Conference on Sustainable Cities & Towns* (ICLEI) on three separate occasions – 1994, 2004, and 2024 – not merely for symbolic or logistical reasons but due to its consolidated urban and institutional profile. Since the outset, Aalborg has assumed a pioneering role in shaping a sustainable urban agenda. In 1994, the city hosted the seminal conference from which the *Aalborg Charter* emerged, which, as discussed in the previous chapters, was one of the first shared European documents to formally confirm the commitment of local authorities towards integrated and environmentally conscious models of urban development. This initial impetus was not an isolated event but rather the foundation for a coherent and enduring administrative strategy.

What has distinguished Aalborg over time is the attempt to create the conditions to translate principles into practice through normative frameworks, local planning instruments, and multi-level governance mechanisms. Its administrative trajectory in the field of sustainability has been built on a strong institutional foundation and an adaptive strategic vision. A central component of this trajectory has been Aalborg's urban regeneration projects, which have turned the city into an advanced laboratory of territorial innovation. Beginning with the urban regeneration of the waterfront and the transformation of

deindustrialised sites, the municipality has implemented interventions that integrate urban requalification with the goals of climate resilience, social cohesion, and environmental justice.

These initiatives have been characterised by a focus on environmental restoration and the establishment of urban ecological corridors, the integration of sustainable mobility systems, and the development of accessible, green, and liveable public spaces. Green and blue infrastructure, climate adaptation devices, the centrality of nature in urban design, and active citizen engagement constitute the distinguishing features of a planning approach orientated towards a structural transformation of the urban context. In this sense, Aalborg has not merely hosted the conferences; it has attempted to embody some of the very principles that those conferences have progressively articulated. Aalborg is, therefore, a paradigmatic example of how cities can interpret and update the global challenges of sustainability locally.

The *Aalborg Conditions*, adopted in 2024, represent the most recent advancement in the European journey towards sustainable urbanism, which was initiated with the *Aalborg Charter* of 1994 and further developed through the *Aalborg Commitments* of 2004. Thirty years after the original declaration, the *Conditions* do not simply revise previous documents but instead critically reframe their underlying premises, thereby marking a substantial conceptual and methodological shift.

The *Aalborg Charter* may be read as a turning point in the European urban sustainability agenda, a decisive moment when cities collectively declared their intent to move beyond linear and sectoral models and embrace a more integrated, participatory, and ecologically informed planning approach. The *Commitments* translated a structured programme which articulated into ten thematic areas to guide municipal action. The *Conditions* introduce a ‘third generation’ reflection, one that acknowledges contradictions and structural uncertainty as the very conditions that characterise urban projects.

In this respect, the *Conditions* explicitly invite recognition of ‘the elephant in the room’, i.e., an irreversible climate crisis, entrenched social inequality, eroding democratic trust, and growing pressure on existing and natural resources. The conditions of crises are no longer hypothetical emergencies to be averted but structural features of the urban present. If the *Charter* and the *Commitments* spoke the language of promise and commitment, the *Conditions* speak the language of a ‘status’, a condition that calls for new forms of collective responsibility, critical awareness, and adaptive capacity.

In defining the framework for urban sustainability, the *Aalborg Conditions* – *Shared Governance*, *Integrated Finance*, and *Cohesive Transition* – shift the emphasis from goal setting to the enabling (or constraining) conditions for urban sustainable transitions. Local governments position themselves as a strategic Compass that urges local administrations to develop long-term, inclusive, and place-based visions. Within this framework, the conceptual lens of the *Urban Sustainability Compass* proves to be especially insightful in capturing the transformative potential of the *Conditions*.

From the perspective of *Urban Political Ecology*, the *Conditions* underscore not only the technical management of resources but also the politically and historically layered nature of urban governance. The acknowledgement of persistent environmental inequalities, unavoidable land-use conflicts, and infrastructural legacies resonates with the fundamental insight that urban sustainability cannot be pursued without confronting power relations.

The lens of *Just Sustainability* is equally central. The *Conditions* integrate principles of equity, inclusion, and participation, not as ancillary but as foundational to urban sustainability. Recognition of cultural diversity, intergenerational justice, and equitable access to public services and spaces reflects a commitment to both procedural and distributive justice.

From the standpoint of *Phronetic Planning*, the *Aalborg Conditions* advocate a planning ethos which is grounded in contextual judgement, institutional experimentation, and reflexivity. The emphasis on the ethical and critical role of planners, designers and city makers in enhancing collective learning and addressing uncertainty as a structural feature of sustainable transitions aligns closely with the tradition of phronesis as practical wisdom.

Finally, the domain of *Urban Sustainability Governance* is fully embedded in the *Conditions*, which provide a specific insight for the integration of strategic visions, dynamic indicators, and multi-level coordination. The proposed governance model is not merely procedural; it is orientated towards building transformative capacity within local institutions and communities.

When interpreted through the *Urban Sustainability Compass*, the *Aalborg Conditions 2024* emerge as a manifesto for a conception of sustainability not as a fixed end-state but as an inherently political, ethical, and relational process. Sustainable change does not require best practices only but also novel ways of thinking, evaluating, and acting in the urban space.

In this sense, the *Conditions* are not simply a programmatic document but a cultural infrastructure designed to support cities that can learn, adapt, and transform in response to the complexities of our time. Aalborg, as a host city, is a living laboratory for this approach, committed to demonstrating how global challenges can be effectively addressed by the local dimension and by cultivating conscious, inclusive and transformative actions of ‘making’ urban sustainability.

Reflecting on Urban Sustainability as a Planning Paradigm in Transition

The Aalborg case explored in this book across key projects and processes in the last decades demonstrates that urban sustainability is neither a singular policy objective nor a fixed trajectory. Rather, it emerges as a situated, evolving, and contested practice; as a process shaped by iterative engagements between institutions, actors, material spaces, and shifting societal values. This book has shown that urban sustainability cannot be understood without paying close attention to place-specific configurations of planning rationalities, ecological

imaginaries, and political tensions that unfold across time and scale. The *Urban Sustainability Compass* has served as a heuristic device to navigate this complexity, revealing that urgency, legitimization, implementation, and experimentation intersect in situated ways in Aalborg's projects and processes.

Aalborg's transformation – from post-industrial decline to a recognised leader in municipal sustainability (Figure 8.2) – has been marked by spatial reinvention, institutional learning, and a persistent commitment to experimentation. Its trajectory underscores the fact that urban sustainability is not achieved through static plans or universal models but rather through reflexive, negotiated, and value-laden practices that evolve in response to uncertainty. As the chapters of the book demonstrate, urban sustainability is enacted not just through infrastructure and strategies but also through storytelling, coalition-building, and civic trust.

Planning for urban sustainability, as the Aalborg case illustrates, must embrace *phronesis*, i.e., practical judgement that is attuned to context, ethics, and political reality (Clegg, Flyvbjerg, and Haugaard 2014), as well as deliberative practice and creative negotiations (Forester 2013). In practice, this means engaging with dilemmas rather than avoiding them, recognising trade-offs, and maintaining the flexibility to adjust goals and strategies as new challenges emerge. This emphasis resonates strongly with a growing call for a *paradigm shift* from goal-driven, blueprint-based planning to more *adaptive, learning-orientated* and reflective approaches, which we endorse in this book.

A paradigm shift implies several changes. First, it requires bridging the gap between *discursive vision and planning implementation* to ensure that sustainability ambitions are not decoupled from actual land-use decisions or urban transformation efforts. Second, it highlights the need for planners to speak openly about *dilemmas and conflicts*, particularly the tensions between economic growth imperatives and environmental responsibility. Third, it reframes the climate crisis not as a sectoral issue but as a *cross-cutting mandate* that must infuse every domain of urban governance from top-level leadership to front-line practice. Urban sustainability is not only a task for specialists but also a shared societal responsibility.

Against this background, the Aalborg case offers both inspiration and caution. The city has demonstrated that strategic leadership, cross-sectoral collaboration, and civic engagement can align around shared visions. Yet it also reveals the fragility of these alignments and the pressures that planners face when attempting to maintain coherence across competing agendas. The *logics of the Urban Sustainability Compass* are not theoretical abstractions; they are visible in the day-to-day struggles of navigating urgency (e.g., climate action), securing legitimization (e.g., participation), ensuring implementation (e.g., infrastructure delivery), and embracing experimentation (e.g., policy innovation).

The adoption of the *2024 Aalborg Conditions* signals a renewed effort to consolidate these principles into actionable planning frameworks. With guiding themes such as ecological embeddedness, intergenerational justice, and civic agency, the *Conditions* offer a normative guide to urban futures. Yet their true impact will depend not only on their articulation but also on their



Figure 8.2 View of Aalborg. ↻

(Photo by Absent Wall on Unsplash, published on 20 March 2020).

interpretation and operationalisation in practice. What matters is not only setting a direction but also retaining the capacity to pause, recalibrate, and shift course when needed.

In conclusion, this book does not offer a prescriptive model or final verdict. Instead, it issues an invitation: to approach urban sustainability not as a checklist to complete but as an ongoing, democratic, and plural endeavour where values are contested, futures are uncertain, and planning remains a critical and hopeful act of collective imagination. Aalborg's experience reminds us that *urban sustainability is always in the making* and that the real task of planning is to keep that process alive, responsive, and just.

References

- Agyeman, J. 2008. "Toward a "Just" Sustainability?" *Continuum* 22(6):751–56. doi: 10.1080/10304310802452487
- Brown, H. S., and P. J. Vergragt. 2016. "From Consumerism to Wellbeing: Toward a Cultural Transition?" *Journal of Cleaner Production* 132:308–17.
- Bulkeley, H., and M. Betsill. 2013. "Revisiting the Urban Politics of Climate Change". *Environmental Politics* 22(1):136–54. doi: 10.1080/09644016.2013.755797
- Clegg, S., B. Flyvbjerg, and M. Haugaard. 2014. "Reflections on Phronetic Social Science: A Dialogue between Stewart Clegg, Bent Flyvbjerg and Mark Haugaard". *Journal of Political Power* 7(2):275–306. doi:10.1080/2158379X.2014.929259
- Eckerberg, K., and M. Joas. 2004. "Multi-Level Environmental Governance: A Concept Under Stress?" *Local Environment* 9(5):405–12.
- Flyvbjerg, B. 1998. *Rationality and Power: Democracy in Practice*. Chicago, IL: University of Chicago Press.

- Flyvbjerg, B. 2001. *Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again*. Cambridge: Cambridge University Press.
- Flyvbjerg, B. 2004. 'Phronetic Planning Research: Theoretical and Methodological Reflections'. *Planning Theory & Practice* 5(3):283–306. doi:10.1080/1464935042000250195
- Forester, J. 2013. 'On the Theory and Practice of Critical Pragmatism: Deliberative Practice and Creative Negotiations'. *Planning Theory* 12(1):5–22. doi:10.1177/1473095212448750
- Hajer, M., and H. Wagenaar. 2003. *Deliberative Policy Analysis: Understanding Governance in the Network Society*. Cambridge: Cambridge University Press.
- Healey, P. 1998. 'Building Institutional Capacity through Collaborative Approaches to Urban Planning'. *Environment and Planning A: Economy and Space* 30(9):1531–46. doi:10.1068/a301531
- Healey, P. 2013. 'Circuits of Knowledge and Techniques: The Transnational Flow of Planning Ideas and Practices'. *International Journal of Urban and Regional Research* 37(5):1510–26. doi:10.1111/1468-2427.12044
- ICLEI. 1994. *Aalborg Charter*. <https://iclei-europe.org/publications-tools/?c=search&uid=2K4g4nsA>
- ICLEI. 2004. *Aalborg Commitments*. <https://iclei-europe.org/publications-tools/?c=search&uid=AvYfqdhj>
- ICLEI. 2024. *Aalborg Conditions*. https://iclei-europe.org/fileadmin/user_upload/Our_Work/Advocacy/Aalborg_Conditions/The-Aalborg-Conditions.pdf
- Innes, J. E., and D. E. Booher. 2010. *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*. London: Routledge.
- Klimaloven, LBK nr. 962 af 26/06/2023. n.d. <https://www.retsinformation.dk/eli/lta/2021/2580>
- Sandercock, L. 2004. 'Out of the Closet: The Importance of Stories and Storytelling in Planning Practice'. In B. Sanyal (Ed.), *Dialogues in Urban and Regional Planning* (pp. 315–37). London: Routledge.
- Sandercock, L., and P. Lyssiotis. 2003. *Cosmopolis II: Mongrel Cities in the 21st Century*. London; New York: Continuum.
- Smith, R., and A. Wiek. 2012. 'Achievements and Opportunities in Initiating Governance for Urban Sustainability'. *Environment and Planning C: Government and Policy* 30(3):429–47. doi:10.1068/c10158
- Swyngedouw, E., and N. Heynen. 2003. 'Urban Political Ecology, Justice and the Politics of Scale'. *Antipode* 35(5):898–918. doi: 10.1111/j.1467-8330.2003.00364.x
- United Nations. 2015. *SDGs*. <https://sdgs.un.org/goals>

Index

Pages in *italics* refer to figures, pages in **bold** refer to tables, pages in *italics/bold* refer to box, and pages followed by “n” refer to notes.

- Aalborg xiv–xvii, 1–3, 6, 8–9, 11–44, **45**, 46–76, **77–78**, 79–90, 92–101, 103–109, *111*, 113–118, 121, *122*, 123–135, 137–138, 140–143, 145, 147–149, 152–156, 158, 161, 163–177, 179–182, 184, 187–193, **194**, 195–223, **224**, 225, 226n2, 227–231, 233–237, **238**, 239–245
- Aalborg Charter 1, 12, 16, 20–22, 26, 29–32, 41–44, **45**, 46–48, 50–55, 62, 64, *71–72*, **74**, 75, 77, **78**, 82, 87–88, 129, 203–204, 232, 235, 240–241, 245
- Aalborg Commitments 12, 21, 27, 64, *71–72*, **78**, 82, 87, 129, 232, 241, 245
- Aalborg Conditions 3, 21, 73, **74**, 233, 238, 240–243
- Aalborg East 61–62, 64, 73, 76, 200, 215–218, 222, **224**, 225–226, 228, 236–237
- Aalborg Municipality xiv, xvi–xvii, 15, 20, 37, 41–42, 81, 90, 92, 99, 103, 114, 121, 149, 158, 170, 182, 191, 207, 211, 215–216, 218, 221
- Aalborg University xiv–xv, 1, 3, 15, 26, 39–42, 47–48, 62, 64–65, 68, 83, 99–100, 105, 107, 129, 196–198, 203, 205, 230
- accessibility 33, 69, 93, 98, 103, 107, 115, 135, 138, 150, 176, 178, 199–200, 204–206, 208–209, 211–214, 220, 222–224, 236
- active mobility xvi, 108, 110, 181, 200, 210, 214–215, 220, 223, **224**, 225, 236
- adaptive 171, 195, 203, 234, 243; adaptative capacity 16, 80, 167, 241; adaptative planning 3, 7, 13, 38, 44, 46, 58, 76, 87, 93, 97, 101, 103, 105–106, 110, 114–115, *117*, 159, 162, 166, 208, 233; adaptative strategies 31, 40–41, **45**, 59–60, 71, 123, **124**; adaptive governance 19, 21–22, 39, 61, 69, 193; adaptive infrastructure 64, 66, 133, 138, 162; adaptive mobility governance 210; adaptive process 222; adaptive reuse 140, 142, 144, 147, 158, **194**, 236, **238**; adaptive zoning **160**, 240; climate-adaptive 70, 90, 92, 121, 127
- agenda 12, 16, 20–21, 26–28, 42, 48, 53–54, *71*, 75, **77–78**, 84
- Agyeman, Julian 10–11, 20, 22, 25, 30, 47, 52, 77, 79, 81, 87, 128, 171, 195, 199, 201, 227, 236, 244
- Andersen, Anne Juel xiv, 3, 16, **17**, 18, 25, 32, 34, 38, 41, 47, 57–59, 62, 81, 90, 128, 135, 163, 178, 195
- architecture xiv–xvi, 19, 21, 43, 71, 99–105, 107, 113, 115–116, 129–130, 138, 143, 148, 153, 161, 174, 177, 188, 191, 209, 218
- axis, Growth Axis (Vækstaksen) 53, 55, 61–68, 70, 75, **77–78**, 98, 113, 117, 140, 157, 187, 200, 204–206, 222, 224
- Badami, Alessandra xiv, 1, 3, 103, 128, 131, 134, 163, 165, 170, 182, 186, 196, 232; graphic/visual elaborations 4, 14, 58, 63, 74, 111–122, *126*, 162, 179, 192, 226, 237; photo 91, 94, 97, 101–102, 106, 108, 111, 116, 136, 146, 151, 172, 180–181, 185, 190

- bicycle: Bicycle Action Plan (Cykelhandlingsplan) 212; bicycle bridge 213–214; bicycle network 212; bicycle parking **120**, 209, 211, 215, 230
- biodiversity 65–68, 70–72, 75–76, **78**, 110, 158, 166, 168, 170–171, 180, 186, 191, **194**, 196, 198, 211, 221, 239
- blue–green infrastructure 65–66, 68
- branding 16, **17**, 19, 27, 48, 88, 99, 115, 123, **124**, 127, 129, **194**
- Brundtland Report 9–10
- Budolfi 3, 32, 165–167, 186–193, **194**, 195–196, 198, 204, 208–209, 222, **223**, 225, 227
- case study xiv, 14, 26, 28, 48, 81, 83, 87, 129, 164, 166–167, 196, 198, 229–230
- citizens xvi, 16, 22, 39, 53, 56–57, 62, 67–69, 73, 76, **78**, 95, 108–109, 115, 117–118, 136, 149, 167–168, 171, 174, 189, 191–192, 238
- climate adaptation xvii, 10, 26, 60, 65–66, 68–69, 73, 96, 101, 119, 134, 142, 144, 154–155, **160**, 168, 176–177, 179, 192–193, 208, 236, 239, 241
- climate change xvi–xvii, 7, 25, 69, 81–82, 143, 157, 165–166, 168, 178, 189, 192, 196–197, 244
- climate plan/planning xvi, 3, 11, 55, 73, 76, **78**, 80, 233, 238–239
- co–creation 53–54, 65, 70, 73, 76, **78**, 79, 133, 218, 237, 239
- connectivity 29, 35, 114, 136, 157, 180, 205, 209–210, 213–216, 220–221, 223, 237, 239
- coordination 12, **13**, 20, 36, 42–44, **45**, 52, 55, **60**, 62, **74**, **77–78**, 89, 133, 149, 237, 240, 242
- Create (university campus) 86, 89, 104, 107–108, 123, **124**
- crisis 1–3, 18–19, 26, 38, 44, 55, 85, 88, 106, 137, 166, 198, 203, **238**, 241, 243
- cultural heritage xvi, 36, 60, 144
- Danish Crown 133–134, 145–147, 159, **160**, 161
- Dansk Andels Cementfabrik /DAC 35, 58–59, 133–137, 140, 143, 159, **160**, 161, 163
- data 14–15, 24, 70, 138, 167, 215, 227
- daylighting 165–167, 170–171, 176, 186, **194**, 198, 236, 239
- deindustrialisation 20, 40, **45**, 54, 89, 137, 140
- democracy 8, 20, 26, 42, 48, 71, **77**, 82, 218, 228, 244; democractic sustainability 16; democratic planning 114, 233
- dense urban/isation xvi, 113, **117**, 170
- density 90, 110, 113, 118, 137, 140, 143, 182, 187, 215
- design (urban) 18, 22, 27, **45**, **77**, 88, 110, 128, 133, 148, 156, 166, 186, 191, **194**, 196, 216, **224**, 229, 241
- digital platforms 15; digital innovation 68; digital tools 69; digital transformation 70–71, 76, **78**, 129; digital system 215, 219; digitalised municipality plans 60
- drainage 118, **139**, 143, 148, 171, 178
- ecological design 3, 85, 99, 105, 165, **194**
- ecological modernisation 7, 16
- ecosystem services 19, 167–168, 192, 195–197
- education xv, 3, 26, 35, 47, 58, 61, 64–65, 68, 70, 73, 85, 92, 103, 105, 107, 115, 138–139, 143, 156–157, 174–175, 178, 181, 197, 208, 213, 215, 228
- energy transition/s 16, 37, 42, 68, 70
- environmental governance 7, 81, 244
- Eternitten xvi, 62, 68, 73, 76, 144, 165–167, 181–185, 192–193, **194**, 195–197, 236
- Europe xv, 6, 26–27, 35, 38, 48, **72**, 130, 177, 196–198, 203, 205, 209; European cities 20; European Conference on Sustainable Cities and Towns 41–43, 46, **71**, **74**, 129, 240, 245; European spatial planning 61, 83, 164; European sustainability agendas 50, 53–54, 57, 75, 88; European sustainability networks 30, 39, 47; European urban governance 73, 76, **78**, 82, 241; *see also* Green Deals (Local); European urban policy 26, 31, 166–167, 230, 233, 235; New European Bauhaus 218, 228
- experimentation 2–3, 8–9, 12–19, 22, 24, 26, 28–31, 41–44, **45**, 46–47, 50, 52, 55, 59, 61, **71**, 75, **78**, 79, 81–83, 85–86, 88–89, 92–93, 103–105, 110, 125, 127, 132–133, 136–137, 143, 148, 151, **160**, 161–163, 171, 193, **194**, 200–201, 204, 218, 223, 225, 232, 236–237, 240, 242–243
- façade active / flexible / open 110, 118, **119–120**, 157, 184

- Fjordkatalog 41, 47, 51–53, 55, 57–59, 75, **77–78**, 79–80, 85, 93, 128, 131, 137, 145, 163, 235
- Fjord landscape 59, 121, 148
- Flood management 179; flood resilience **194**, 195–197
- Flyvbjerg, Bent 8, 11, 14–16, **17**, 20, 22–23, 26, 31, 46, 48, 51–52, 54, 79, 82, 87, 129, 202, 204, 228, 230, 232, 234, 236, 243–245
- Forester, John 15, 21, 23, 80, 202, 243
- Gabriel District **194**, 236
- Godsbanearaet xvi, 62, 165–166, 170–171, 176–177, 179–180, 193, **194**, 195, 198, 236
- governance 1–3, 7–8, 10–23, 25–32, 34, 36, 38–44, **45**, 46–47, 50–55, 57, **60**, 61–63, 67, 69–**71**, 73, 75, **77–78**, 79–83, 86–96, 99, 103–105, 110, 114, 121, **124**, 125, 127, 130, 132, 135–136, 139, 141–144, 149–152, 154, 158, **160**, 161, 163, 173, 195, 199–202, 211, 218, 221, 225, 227–228, 230, 233, 235–240, 242–243, 245
- green–blue infrastructure 115, 168, 195
- Green Deals (Local) 16, 22, 73, 76, 82
- green infrastructure 3, 8, 23, 55, 65–66, 68, 70, 83, 88, 111, 113, 134, 143–144, 148, 156, 158, 165, 170, 193, **194**, 196, 220, 232–234, 236, **238**
- green transition xv–xvi, 65, 69–70, **77**, 80, 215
- Grundejerforening **139**
- Hajer, Maarten 8, 12, 15, 18, 22, 26, 79, 82, 199, 228, 232, 245
- Healey, Patsy 22, 26, 52, 76, 79, 82, 125, 129, 167, 197, 232, 234, 245
- heritage conservation 144, 190
- Heynen, Nik 10–11, 20, 26, 28, 30, 48–49, 52, 79, 82–83, 86, 130, 201, 228–229, 235, 245
- housing xv–xvii, 34–35, 37–38, **45**, 55–56, 58, 61–62, 64–70, **77–78**, 84–88, 92, 100, 104, 106–107, **117**, **119**, 138–139, 142, 147–148, 154, 156, 158, **160**, 161, 178, 183, 188, 206, 216, 218, 220, 237, 240; Himmerland 216, 218; housing associations xv; social housing 183; students/student housing xv–xvi, 66, 68, 100, 104, 106–108, 178, 183, 203
- implementation 2–3, 8, 12–15, **17**, 18–22, 24, 29–31, 38, 43–47, 53, 56, 62, 72–75, **78**, 79, 81, 83, 86, 88–89, 92, 95, 103–104, 123, **124**, 125, 127–128, 132, 135, 137, 142, 144, 148, 150, 154, 158–159, **160**, 161–163, 167, 171, 182, 189, 191–193, **194**, 196, 201, 206–208, 214, 221–222, **223–224**, 225, 232, 236–237, 240, 243
- industrial area/s xv–xvi, **77**, 134, 152
- industrial city xv, 15, 31, 34, 37, 40, 50, 90, 123
- industrial decline 15, 20, 22, 39, 44, **78**, 85, 123, **124**, 131, 137, **160**, 192, 235, **238**, 243
- industrial heritage 39, 58, 103, 113, 117, 137–138, 140, 148, 185
- institutional change 11, 15, 17, 235
- interdisciplinary 2, 73, **78**, 81, 109, 153, 170
- interpretive logics 2, 8–9, 12–15, 17, 24, 30, 32, 52, 74–75, 79, 88–89, 123, 137, 201, 232–234, 237, 240
- Jomfru Ane Parken 57, 86, 88, 96–97, 103, 123, **124**, 128–129, 236
- justice / equity 7, 11–12, **13**, 20, 25, 28, 30, 39, 44, 47, 49, 52, 61, 72, 81, 83, 87, 91, 104, 122, 128, 130, 132–133, 150, 193, 198–199, 201–202, 220, 227–228, 230, 233, 235–238, 241–243, 245
- just sustainability 2–3, 8, 10–14, 25, 30, 47, 52, 75, 87, 91, 93, 97, 100, 103, 107, 114–115, 121, 128, 132–133, 140, 150, **160**, 171, 193, 201–202, 225, 236–237, 240, 242
- Kaika, Maria 10–11, 28
- kantzoner 118, **120**, 157
- Karolinelund 62, 165–166, 169–170, 173–177, 192–193, **194**, 195–196, 236, 239
- Kennedy Plads 204, 208–212, 214, 222, **224**, 225, 236
- Kildeparken 211, 215–218, 223, **224**, 228, 230, 237
- Kotsila, Pavlos 11, 21, 27
- Kulturbroen 213–214, 222, **224**, 225, 236
- Lafferty, William 16, **17**, 19, 21, 27, 43, 48, 50, 52, 83
- land use/spatial strategy 55–56, 60, 67, 79, 83, 88, 92, 113, 117, 143, 150, 152, 182, 200, 203, 205, 214, 229, 239

- learning 3, 6–9, 11, 13, 15, 18–23, 29, 41, 44, 52–53, 71–72, 74–76, **78**, 87, 89, 91, 93, 97, 103, 106, 115, 123, 125, 127, 132–133, 139, 157, 159, 161, 163, 167, 175, 193, 197, 218, 235, **238**, 242–243
- legitimation 2–3, 12–15, 17–22, 29–31, 43–44, **45**, 46, 52, 61, 75, **78**, 79, 86, 88–89, 95, 103–104, 107, 123, **124**, 125, 127, 132–133, 135, 137, 144, 159, **160**, 161–162, 167, 171, 192–193, **194**, 201, 225, 235–237, 240, 243
- Lindholm Brygge 61, 63, 137–145, 159, 163
- Lindholm Strandpark 132–139, 159, **160**, 161, 163, 236
- Lissandrello, Enza xiv, 1, 3, 7, 9, 13–15, 19, 23, 27, 29, **45**, 50, 64, **74**, **77–78**, 79, 83, 85, 99, 118, **124**, 126, 129–130, 132, 162, 164, 192, 199, 202–203, 205, 207, 210, 212–213, 223, 226, 229, 232, 237
- Local Agenda 12, 16, **17**, 20–21, 26–27, 42, 48, 53–54, 75, **78**
- Lokalplan/er 40, 49, 62, 71, 73, 75, **78**, 79, 117, **119–120**, 127–128, 140–141, 156, 163, 195, 208, 210–211, 214, 226–227
- Lund, Henrik 16, 27
- manufacturing 20, 34–35, 38, 92, 134, 152, 187, 203
- methodology 15, 86, 166, 233, 235;
method 2, 9, 14, 18, 25–28, 30–31, 51–54, 82, 87, 89, 100, 129, 132–133, 161–162, 164–165, 167, 200–202, 229, 234–235, 241, 245
- mobility xvi, 8, 16, **17**, 18, 21, 23–24, 26–27, 42, 53, 55, 60–68, 70, **72**, 73, 75–76, **77–78**, 83, 92, 107–108, 110, 113–114, **117**, 118, **160**, 181, 184, 197–199, 201–205, 208–221, 223, **224**, 225–226, 228–231, 233–234, 236–237, **238**, 239, 241; mobility transition 3, 158, 200, 222; mobility hubs xvi, 200, 212–215, 222, **224**
- modernisation 7, 13, 16, 18, 20, 37, 42, 188; modern knowledge-based city xv, 29, 184
- Musikkens Hus 62, 86, 88, 95, 98, 100, 103–107, 109–110, 115, 123, **124**, 128, 156, 170–171, 174
- narratives 2, 10, 12–13, 16–19, 34, 40–41, 43–44, 46, 52, 55, 71, 73, 75–76, **77–78**, 79, 92, 94, 125, 127, 133, 135, 164, 167, 171, 192–193, **194**, 199–200, 202, 234, 236
- nature-based solutions 27, 65, 68, 70, 166, 190, 196–198, 236
- Næss, Petter 10, 16, **17**, 28, 39, 49, 56–57, 83, 204, 215, 220, 227, 229
- Nordhavn 133–134, 148–152, 159, **160**, 161, 163, 226
- Nordkraft 36, 48, 58–59, 62, 86, 88, 95, 101–103, 110, 123, **124**, 127–129, 170, 174, 195, 236
- Nørresundby xvi, 3, 29, 32, 34–35, 47, 51, 56–58, 62, 80, 127, 131–137, 145–150, 152, 156, 159, **160**, 161–163, 213, 226, 232–234, 236, **238**; *see also* Stigsborg Havnefront
- North Jutland xv, 15, 37, 105, 230
- Ø-Gadekvarteret 85, 88–89, 92–94, 128, 130, 195, 236
- open space/s 111, 121, 139, 143, 157, 168, 228
- Østerå 3, 98, 110, 165–174, 176, 180–181, 186, 191–192, **194**, 195, 236, 239
- Østre Havn /Østre Havnebassin 73, 76, 86, 89, 104–105, 109–115, 123, **124**, 127–128, 144, 171, 195, 198
- participation **13**, 20, 26, 28, 39–40, 44, 54, **60**, 75, 103, **124**, 130, 136, **139**, 153, 176, 232, 240, 242–243; stakeholders xv–xvi, 22, 24, 53, 56, 73, **78**, 87, 109, 113, 131, 133, 138, **160**, 167, 192
- phases planning/transformation/
regeneration 3, 18–19, 29–31, 44, 60, 66, 76, 85–86, 88, 105, 108, 123, 125, 127, 144, 146, 154, 182, 187, 218, **223**
- phronetic planning 1, 3, 11–14, 16–17, 22, 26, 30, 44, 52, 75, 79, 82, 87, 90, 93, 100, 103, 106, 108, 121, 129, 132–133, **160**, 193, 201–202, 225, 236–237, 240, 242, 245
- planning culture xiv, 31, 42, 51, 54, 61, 67, **77**, 79–80, 87, 159, 233
- planning instruments 8, 15, 23, 31, 40–41, 44, 46, 52, 68, 70–71, 74, 77, 87, 117, 122, 132, 182, 200, 240; planning documents 87, 167, 202, 205; Bykatalog, Fjordkatalog 51–53, 79, 93, 235
- planning practice 8, 15, 19, 26, 83, 89, 129, 163

- planstrategi 53, 55, 60–63, 67–71, 75–76, **78**, 80, 117, 128, 206, 226–227; *see also* lokalplan/er
- policy innovation 42–43, **72**, 243
- pollution 36–37, 44, 135, 138, 144, 151–152, 168, **194**, 210, 221, 239
- post-industrial 2, 13, 20, 22, 31, 37–38, 40–44, **45**, 46, 49–51, 57, 75, **78**, 79, 86, 88–90, 93, 96, 99, 103, 105, 123, 132, 136–137, 140–144, 149, 159, **160**, 162, 181, 193, 197, 199, 235, 237, **238**, 243
- practice/s 1–3, 7–11, 13, **17**, 19, 22, 24, 27, 30, 34, 39, 43, 50–55, 71, **72**, 73, 76, **78**, 79, 83, 86, 88–89, 103–104, 114, **124**, 127, 132–133, 139, 151, 159, 162, 165, 173–174, 176, 191–193, **194**, 200–201, 203–204, 215, 226n1, 229, 232–236, 239, 242–243, 245
- public space 41–42, 66, 85, 87–88, 90–95, 98, 104, 107, 109–111, 115, **117**, 118, **119–120**, 122, **124**, 127, 135, 138, 142, 145, 147, 149–150, 156–159, 166–167, 170, 172–173, 188–206, 208–211, 214, 220–222, 231–234, 236–237, **238**, 241
- public transport xvi, 3, 27, 56, 62–63, 65–68, 110, 129, 200, 204–206, 210, 212, 214–216, 218, 226, 229
- Rainwater Harvesting and Management / RWHM 118, 143, 177–178, 186
- Realdania (Foundation) 95, 105–106, 216, 218, 226n2, 230
- reflexive 2, 86–87, 127, 132, 161, 164–165, 200, 203, 233–234, 243; reflexive planning **78**, 83
- regional planning 28, **60**, 219, 245
- resilience 19, 21, 26–27, 33, 42, 65–67, 70, 75, 91, 97, 115, 118, 121–122, 132, 143–144, 154–156, 165, 167–168, 178, 186–187, 192, **194**, 197–198, 204, 218, 233, 236, 239, 241
- reuse 38–39, 41, 44, **45**, 58–61, 69, **77**, 88, 93, 101, 103, 106, 115, 117, 127, 134, 138, 140, 142, 144, 147, 158, **160**, 177, 179, 184–185, **194**, 236, **238**
- rewilding 165–168, 186–187, 190, 192, **194**, 196–198
- riverscape 120–123, 139–143
- Spritten/Distillery 58–59, 89, 104, 115–118, **119**, 121–123, **124**, 144, 157, 236
- Stigsborg 67, 70, 80, 86, 132–135, 151–154, 156–159, **160**, 161, 163, 214, 223, **224**, 225, 236
- stormwater management 157, 177–178, 180, 189, 191, 198, 216, 223
- strategies xiv–xv, 3, 9, 12, 14, 16, 21, 26, 30–32, 39–44, **45**, 46–55, 57, 59–60, 62, 64–67, 69–70, **71**, 75–76, **78**, 79, 82, 84, 86, 89–90, 92, 94, 96, 104–105, 109–110, 113, 115, **117**, 123, **124**, 127, 129, 133, 143–144, 149, 152, 154, 156–159, 166, 191, 193, 195–196, 200, 202–205, 208, 215, 219, 232, 235–238, 243; growth axis 53, 55, 60–68, 70, 75, **77–78**, 117, 200, 204–206, 222, 224; strategic spatial planning 27, 30, 47, 52, 65, 67, 77, 82; strategic urban transformation xv; strategic vision 18, 40, 61, 65, 73, 87, 142, 153, 181, 193, **194**, 204, 206, 240; sustainability governance 14, **17**, 21, 31, 42, 44, 47, 52, 81–82, 238
- sustainability xiv, xvi, 1, 3, 6–16, **17**, 18–33, 41–44, **45**, 46–57, 59–69, **71**, 74–95, 97–98, 103–112, 114–115, 117, 121–123, **124**, 125–128, 130, 132–134, 136–137, 140, 143–144, 148, 150–152, 158–159, **160**, 161–163, 165, 169, 171, 175, 183, 186–187, 193, **194**, 197, 199, 201–205, 210–211, 214–215, 218–228, 230, 232–237, **238**, 239–245; SDGs 50, 64, 67–68, 71, **72**, 73, **77–78**, 80, 158, 245; sustainability narratives 2, 40, 46, 73, 76, **77**, 135, 192, 200
- Sygehus Nord xvi, 219–220, 227
- Swyngedouw, Erik 10–11, 15, 20, 26, 28, 30–31, 48–49, 52, 79, 82–83, 86, 130, 201, 228–229, 235, 245
- temporary 18, 109, 113, **119–120**, **124**, 127, 167, 171, 174, 176, 179
- theoretical framework 3, 11–15, 161, 166
- Tolbod Plads 86, 88, 95, 98–99, 103, 123
- topography xvi, 143
- Transformation/s xiv–xvii, 1, 3; urban transformation 7–13, 17–20, 23, 26–28, 30–31, 34–35, 37, 40–41, 43–44, **45**, 46–47, 49, 52–53, 56–58, 62–63, 65, 67, 69–71, 76, 80–81, 83, 85–95, 97, 99, 101, 103–107, 109–111, 113, 115–116, **117**, **119**, 121, 123, **124**, 125, 127, 131–133, 135, 137–138, 141, 143–147, 149–150, 152–154, 156, 159,

- 162–166, 169, 171, 173–174, 176–177, 180–182, 184, 187, 190–193, 200, 203–206, 208–209, 211, 213, 216, 218, 220, 222, 224, 228, 232, 234–237, **238**, 239–241, 243
- transport 3, 35–36, 61, 67, 70, 83, 158, 170, 199, 201, 203–204, 211, 230–231, 236–237; +BUS 55, 62, 65–66, 68–70, 75–76, 200, 205–211, 213, 215, 222, **223–224**, 225, 236; public transport 56, 63, 65–66, 68, 110, 129, 200, 205–206, 210, 212, 214, 216, 218, 229; transport hub 34; transport networks 37; transport planning 16; sustainable transport 60, 62, 226n1, 227–228; sustainable transport innovations 20, 26–27
- Turnhout, Esther 13, 18, 20, 23, 28
- uncertainty 2–3, 9, 12–13, 23, 29, 38, 40, 121, 123, **124**, 132, 162, 206, 225, 232–233, 237, 240–243
- urban development xiv–xvii, 1, 9, 16, 31, 37, 39, 41–42, 50, 53–56, 65–66, 69–70, **71–72**, **74**, **78**, 80, 83–84, 88, 94, 108, 110, 115, 131, 134, 149, 154, 167, 170, 200, 205–206, 208, 215, 226n2, 240
- urban planning xiv–xvii, 3, 10, 23, 25, 28, 34, 36, 49, 51, 62, 76, 80–82, 110, 137, **139**, 151, 166, 182, 188, 195, 197, 203–204, 208, 218, 245
- Urban Political Ecology 2, 10–11, 30, 44, 52, 95, 193, 201–202, 224, 228–229, 235–236
- Urban regeneration 1, 3, 4, 19, 38–39, 56, 66, 83, 85, 87, 93, 95, 100–101, 109, 114–115, 117, 121–122, 131–132, 137, 145, 150, 152, 165–166, 174, 183, 185, 188, 191, 199–200, 204, 215, 220, 240
- urban resilience 115, 155, 168, 198
- urban space/s xvi, 70, **119**, 141, 144, 149, 165–166, 179, 188–189, 193, 200, 204, 208, 220, 242
- Urban Sustainability 12–32, 43, **45**, 47, 50–53, 61, 74–75, 77, **78**, 79–80, 85–87, 90–94, 97, 100, 103, 105, 115, 121–123, 125–127, 130, 132–133, 137, 144, 151–152, **160**, 162, 192, **194**, 199–202, 204, 210, 214, 218–220, 232–235, 237, **238**, 241–245
- urban transformation xiv–xv, xvii, 1, 3, 7, 9–12, 26–28, 30–31, 34, 40, 43–44, 46, 49, 63, 81, 83, 86–87, 89, 101, 103, 106, 109, **117**, 123, **124**, 131, 133, 144, 149, 152–154, 193, 199, 201, 203, 205–207, 209, 211, 213, 215, 228, 232, 235–236
- urbanisation xvi, 9, 11, 28, 47–48, 81, 85, 137, 164, 170, 203
- urgency 1–3, 7–9, 15–19, 31–37, 43–46, 52, 61, 75, **78**, 79, 86, 88–90, 93, 123, **124**, 125, 127, 132–133, 137, 143–144, 150, 159, **160**, 161–162, 192, **194**, 201–204, 216, 224, 232, 235–238, 240, 243
- Utzon Center / Utzonparken 62, 86, 88, 95, 98–101, 103, 107, 123, **124**, 127–128
- Vestre Fjordpark 86, 89, 96, 104, 114–116, 123, **124**, 127, 236
- Vestre Havnepromenade 85, 88–94, 127, 236
- vision/s xv, xvii, 3, 12, **13**, 17–19, 22–23, 44, 49, 52, 55–56, 58, 60, 62, 65, 67, **71**, 73, 76, 79, 82, 87, 93, 113, 118, 121, 133, 143, 149–150, 153–154, 158–159, **160**, 199–200, 204, 212, 219, 224–225, 235, **238**, 241–243
- walkability 93, 210, 222; pedestrian 3, 58, 62, 89, 93, 99, **117**, 118, **120**, 121, 136, 139, 142, 145, 156, 158, 183, 189, 204, 208–211, 213–214, 216, 220, 222–223, **224**, 225, 229, 236; pedestrian zones 3, 96, 114, 210
- waterfront xvi, 3, 8, 16, 19, 24, 26, 37–39, 41, 51, 53–54, 57–60, 62, 64, 68, 75, **77–78**, 80, 85–96, 98–100, 103–105, 107–108, 113–114, 122–123, **124**, 125–137, 141, 145, 147–152, 154–156, 159, **160**, 161, 170–171, 223, 232–236, **238**, 240; waterfront redevelopment 8, 60, 100, 104, **117**, 118, **119**
- water management xvi, 157–158, 177–178, 180, 189, 219; stormwater management 178, 191, 198, 216, 223
- wetland/s 59, 65, 70, 181
- Willson, Richard 9, 12, 21, 28, 132, 161, 164