

What makes a Resilient City?

This book is a collection of research behind answering the question of how to foster resilience in cities amidst 21st Century Challenges.

'Shocks' and 'Stresses'; the sudden impact of a natural disaster or the chronic fatigue of social inequality, contribute to weakening the fabric of a city.

Through the comparison of two prototype post-industrial cities, an American example and a European example, the authors have attempted to discover what resilience means to the cities of **Glasgow & Pittsburgh.**

In-depth research into flooding, housing, adaptive re-use and community resilience, garners a specific understanding towards a particular aspect of resilience. However, it is the holistic whole, the interdependence of all the aspects of resilience, which ultimately cultivates the ability to

"not simply exist but instead survive and flourish."

Neil Mcinroy and Sarah Langlands

ISBN: -9780-0-957-6660-7-8

THE RESILIENT CITY

GLASGOW & PITTSBURGH

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Published June, 2017
by MSA Publications

The Mackintosh School of Architecture
The Glasgow School of Art
167 Renfrew Street
Glasgow
G3 6RQ
www.gsa.ac.uk

2017 Mackintosh School of Architecture

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" The unfocused aspirations for sustainability are captured in the notion of resilience – the ability to persist and the ability to adapt. *"*

- Neil W. Adger

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FOREWARD

By Brian Mark Evans

This is the third in a series of research publications supported by the Glasgow Urban Laboratory within the theme of contemporary and future city. In each study, a comparative analysis has been made between Glasgow and a city in the United States and, in turn, this has been used to inform an issue that is of current interest to Glasgow and to the comparator cities. The first two studies explored issues of common interest with Portland (Oregon) and Boston (Massachusetts). *The Resilient City: Glasgow and Pittsburgh* follows on from *The Creative City: Glasgow and Portland* (2015) and *The Liveable City: Glasgow and Boston* (2016).

Pittsburgh and Glasgow are both members of the Rockefeller Resilient City Network, both have published their resilience strategies and both are celebrated as turnaround cities that have overcome the challenges of decline that was the legacy of their success as preeminent US and UK industrial and heavy engineering economies in the nineteenth and twentieth centuries. The transformation in both cities has been remarkable and both are now rightly recognised in North America and Europe for adopting a strategic path to renaissance based on cultural, heritage, environmental and economic renewal.

None of the studies in this trilogy purports to be a comprehensive treatment of the issue. Instead, each book introduces the topic, provides a comparative overview of the characteristics of the two cities in question and then looks in more detail through an examination of a number of particular aspect of the subject: in this case the issues of flooding, housing and adaptive reuse of buildings. The book concludes with a fascinating case study of social resilience in the travelling show community of Glasgow.

GLASGOW



PREFACE

Glasgow and Pittsburgh are both north westerly, medium sized cities, which have both been forced to overcome various challenges that have been posed as a result of various factors – such as, declining economies, industry, political policy or climate.

We were keen to explore these various issues, and apply them to the Rockefeller 100 resilient cities framework before investigating the factors that are currently having detrimental implications on the resilience of a city. Additionally we were keen to gain a thorough understanding of resilience, and the varying connotations of the term around the world depending on the varying need of that city or region.

This document conveys the results of work undertaken between autumn 2016 and spring 2017. We hope this work is enlightening in conveying the importance of building resiliency into an urban or city plan – particularly those communities with a vested interest of the topic within Glasgow, Scotland and Pittsburgh, Pennsylvania.

INTRODUCTION

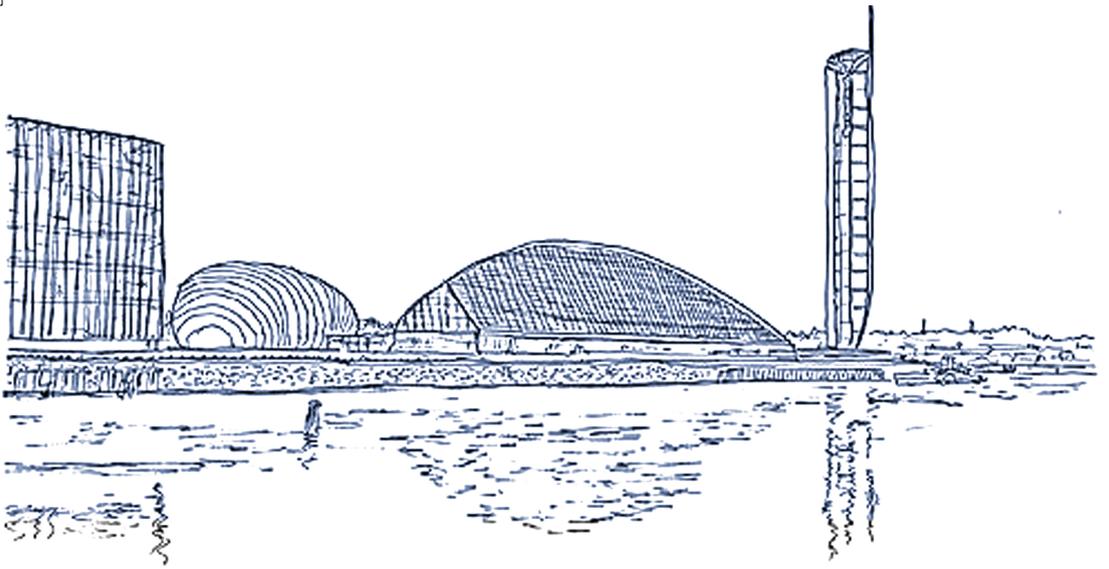
The following research will first provide an overview of the resilience theory as defined by The Rockefeller Foundation in their 100 Resilient Cities Initiative, and an analysis of Glasgow's and Pittsburgh's resilience challenges. This is followed by research into the literature around the concept of 'resilience', focusing on **social/community resilience, ecological resilience, physical resilience and landscaped/planned resilience**.

The main section encompasses a comparison of two post-industrial cities, Glasgow and Pittsburgh, to understand existing frameworks in place and the different factors that contribute to building resilience into the urban fabric.

The final chapter includes a more detailed examination of particular aspects of resilience; flooding, housing, adaptive reuse and social resilience in the Showpeople community of Glasgow.

PITTSBURGH





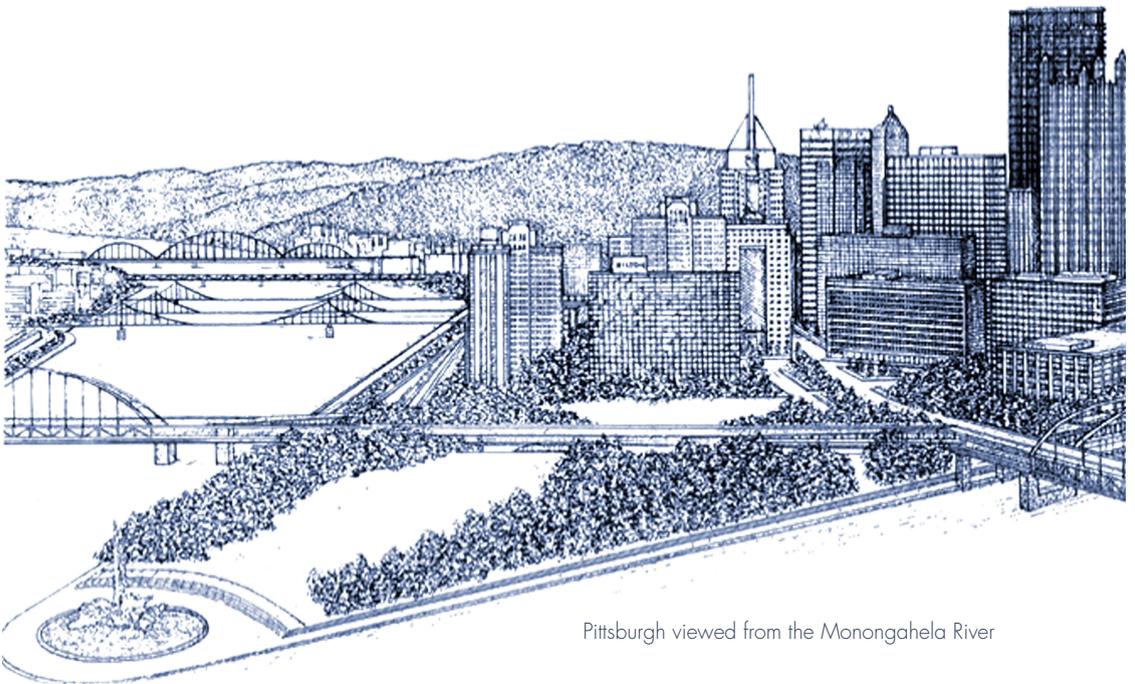
Glasgow viewed from the River Clyde

Glasgow and Pittsburgh have been selected for this study as primarily they have both displayed their ability to adapt and reinvent themselves in times of economic hardship following industrial decline. Additionally, their similarities in scale albeit different geographic locations, **results in an interesting comparison of how different climates, government policies and internal and external influences shapes the challenges of a city's resilience.** The distinct US and UK contexts, allows us to compare and make thoughtful conclusions about factors affecting resilience.

Working as a team of four people, we were able to use our different experiences and understanding of cities to help inform our study. Using this as a basis for our research, we collated data on the cities from secondary sources and analysed through graphic representation and other forms of established data collection techniques. The data collected focuses on the most important factors outlined in each cities resilient strategy as problem areas that they would like to deal with. By covering historic and current information on each city for the outlined factors, we hope to make an extensive source of knowledge on both cities, to help us with a more focused analysis for our individual work.

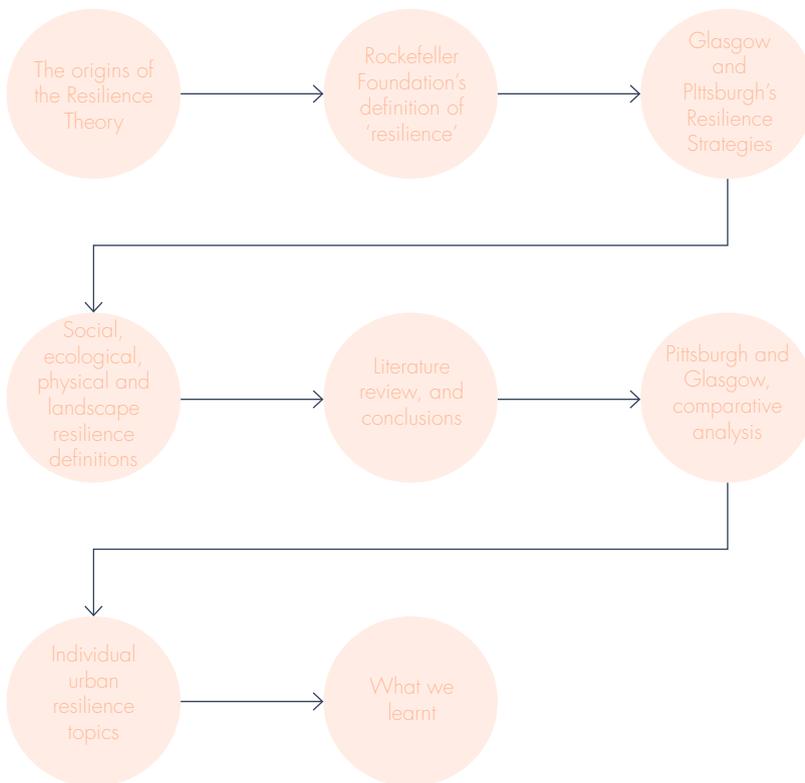
Recent devastation of natural and circumstantial attacks on cities have made us question our cities strength and ability to fight against these unpredictable, unprecedented and crippling 'shocks' that can occur. Starting from an urban scale, this eruption then leaks into all aspects of daily life, depositing chronic 'stress' on the city, its system and its inhabitants. Adding to this, is the constantly shifting environment that surrounds us. From technology advancement, to climate change, to population growth and then dispersal - how our cities can respond to change has become a focal point in contemporary urban discourse.

The negative impacts of such 'shocks and stresses' are detrimental to a city and its inhabitants vitality and prosperity. Therefore, this research project aims to explore the concept of 'resilience' in cities. A growing phenomenon in urban studies; resilience theory deals with environmental, socioeconomic and political uncertainty and risk, with the aim of setting goals to combat these problems.



Pittsburgh viewed from the Monongahela River

It was this research, on the resilience theory and Glasgow and Pittsburgh's Resilient Strategies, which lead each author to focus on a specific aspect of urban resilience: **Flooding, Housing, Adaptive Re-Use, and the Social Resilience of a Minority Group in Glasgow**. Each of these subjects were explored with reference to Pittsburgh or Glasgow, or both, and is conveyed within this publication.



Methodology Chart

FLOODING RESILIENCE

This chapter discusses flood defences in Pittsburgh and Glasgow. Comparing the defences in place which work to prevent potential floodwater from causing physical damage to vital city infrastructure or cause harm to the population, discerns the detrimental impact on the wider resilience of the city.



HOUSING RESILIENCE

This chapter explores the strong correlation between a city's physical urban fabric and the social, economic and ecological resilience of an urban settlement. This can be conveyed through the study of substandard housing and adverse effect it can have on the social resilience of communities.



ADAPTIVE REUSE RESILIENCE

Abandoned buildings that suffer from lack of maintenance, can lead to an appearance of blight and decay. In turn, this can compound social and economic problems that frequently accompany neighbourhoods suffering from building disuse. Therefore, this chapter seeks to understand how adaptive reuse can contribute to the social, economic and environmental factors in cities to help to build a strategic framework for communities and neighbourhoods for urban resilience.



SOCIAL/COMMUNITY RESILIENCE

This chapter explores the socio-economic and social-ecological aspects are further identified as part of an investigation into the resilience of communities, which are forced to foster resilience in the face of adversity. This study exclusively focuses on the community of travelling show people, which re-side along the banks of the river Clyde. As the largest minority group in the East of Glasgow the intention was to consider the vulnerabilities of specific communities that may have a detrimental effect on the wider city resilience.



CITY RESILIENCE

Resilience is the ability of a city – its population and communities, institutions and businesses, transport and infrastructure – to withstand, adapt or develop regardless of any “chronic stress” or “acute shocks” it experiences. The Rockefeller 100 Resilient Cities Network – The Rockefeller Foundation – has defined these as:

CHRONIC STRESS

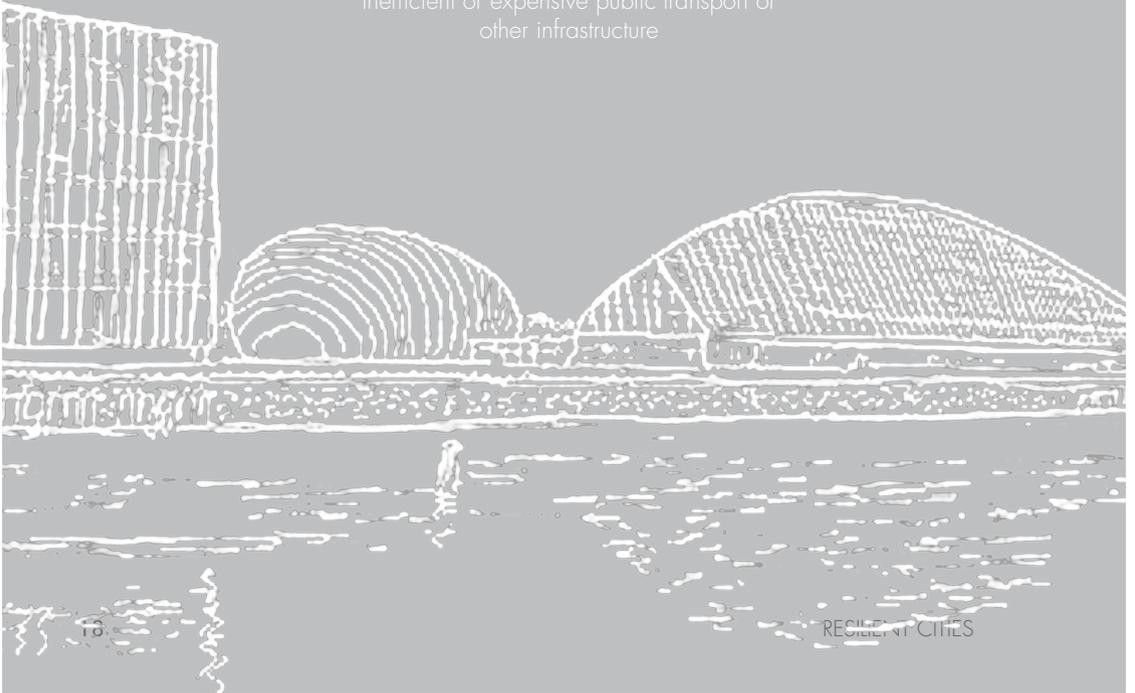


Stresses weaken the fabric of a city on a daily or cyclical basis.



Stresses may include:

- High unemployment
- Poor Health of population
- Inadequate Housing
- High rates of crime
- Shortages of vital supplies
- Inefficient or expensive public transport or other infrastructure

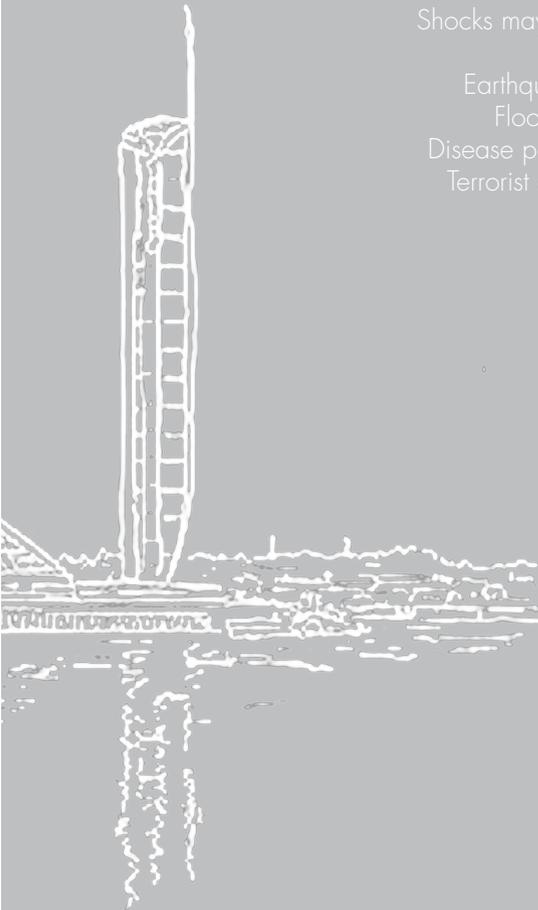


ACUTE SHOCK

Acute shocks are sudden, sharp events that threaten a city.

Shocks may include:

- Earthquakes
- Floods
- Disease pandemic
- Terrorist attacks





chapter 1



RESILIENCE

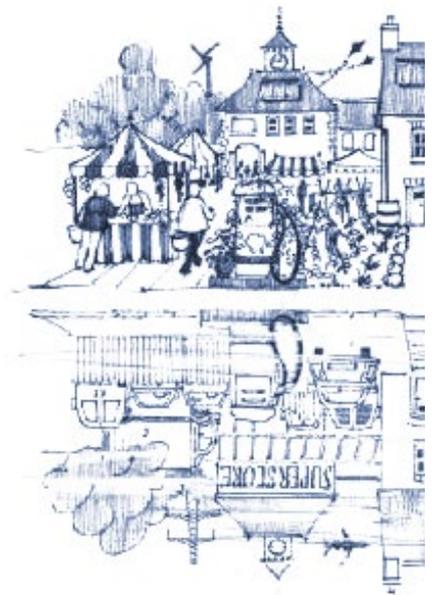
RESILIENCE

(also resiliency)

noun

1. The capacity to recover quickly from difficult situations.
2. The ability of a substance or object to spring back into its original shape after being bent, stretched or broken.

Oxford Dictionary.





The word "**resilience**" can trace its origins to the 1620s, meaning the "act of rebounding," from Latin *resiliens* present participle of *resilire* "to rebound, recoil," from *re-* "back" (see *re-*) + *salire* "to jump, leap" (see *salient* (adj.)). Cf. *result* (v.). Meaning "elasticity" is from 1824.

ORIGINS OF RESILIENCE...

'Resilience' has commonly been used in the past to refer to cities and communities that demonstrate its qualities. Robust, reflective, flexible, integrated and resourceful - are qualities that have strengthened cities and communities against incoming threats. Deriving from social Darwinism and expanding into ecology studies, 'resilience theory' first referred to the adaptive cycle of ecosystems. The origin has been transported into domains beyond their original intention, creating different interpretations, from which 'urban resilience' has developed. Urban resilience theory can be defined as: 'The ability of a system to absorb and change whilst retaining essential function; to have the ability for self organisation; and to have tech capacity to adapt and learn'.

SUSTAINABLE DEVELOPMENT GOALS TOWARDS
URBAN RESILIENCE

'LEAVING NO ONE BEHIND'

UNITED NATIONS - ENVISION 2030

2/3RDS OF COUNTRIES IN
DEVELOPING REGIONS HAVE
ACHIEVED GENDER PARITY IN PRIMARY
EDUCATION

EVERY ONE JOB IN
MANUFACTURING
CREATES 2.2 JOBS IN
OTHER SECTORS

MORE THAN 75% OF THE
POPULATION ARE LIVING TODAY
IN SOCIETIES WHERE INCOME IS
MORE UNEQUALLY DISTRIBUTED
THAN IT WAS IN THE 1990'S

50% OF THE WORLD POPULATION
LIVE IN URBAN AREAS

GOAL

1. NO POVERTY.

GOAL 2. ZERO HUNGER. GOAL

3. GOOD HEALTH AND WELL BEING.

GOAL 4. QUALITY EDUCATION. GOAL 5.

GENDER EQUALITY. GOAL 6. CLEAN WATER AND

SANITATION. GOAL 7. AFFORDABLE AND CLEAN

ENERGY. GOAL 8. DECENT WORK AND ECONOMIC

GROWTH. GOAL 9. INDUSTRY, INNOVATION AND

INFRASTRUCTURE. GOAL 10. REDUCED INEQUALITY.

GOAL 11. SUSTAINABLE CITIES AND INFRASTRUCTURE.

GOAL 12. RESPONSIBLE CONSUMPTION AND

PRODUCTION. GOAL 13. CLIMATE ACTION.

GOAL 14. LIFE BELOW WATER. GOAL 15. LIFE

ON LAND. GOAL 16. PEACE AND JUSTICE

STRONG INSTITUTIONS. GOAL 17.

PARTNERSHIPS TO ACHIEVE THE

GOAL

WHAT IS IT?

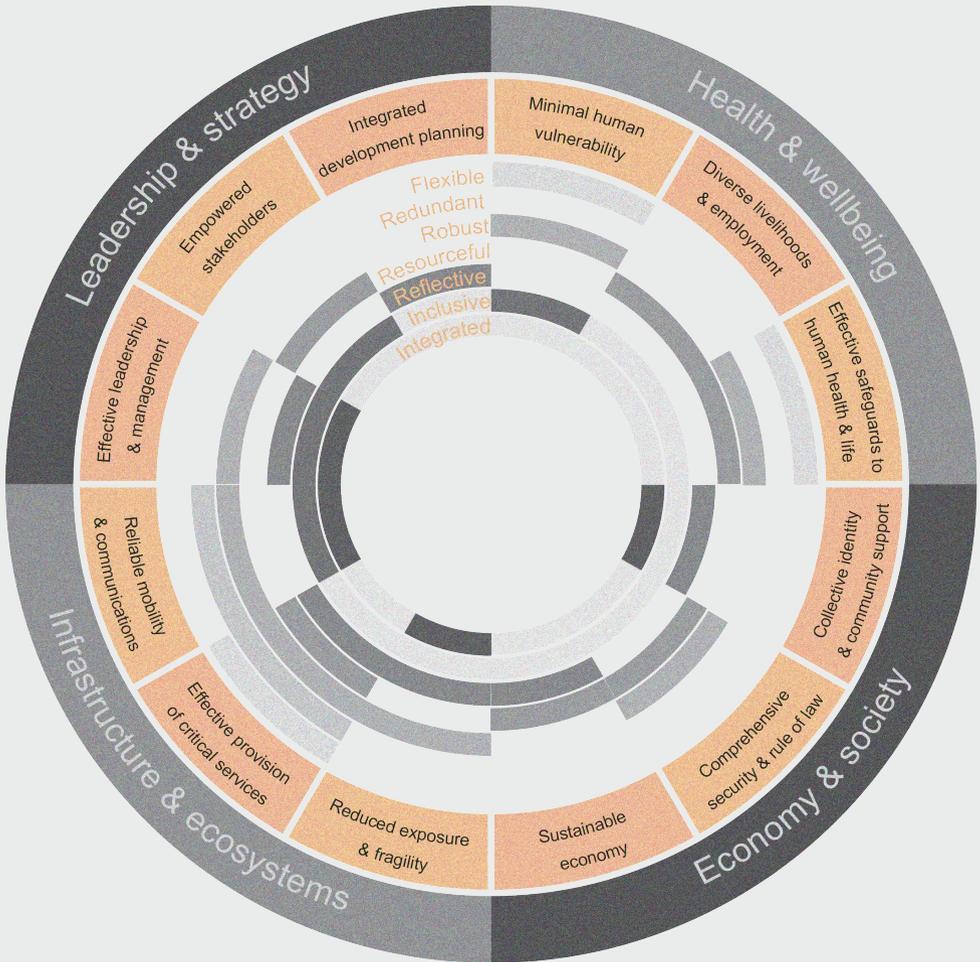
Urban Resilience refers to the ability of individuals, communities, institutions, businesses, and infrastructure within a metropolitan area to withstand, adapt, and thrive despite any chronic stresses or acute shocks they experience. The word “resilience” originates from the Latin word “resilio”, meaning to bounce back. In academic literature, the term tends to be malleable, enabling cross-disciplinary participation. Urban resilience has been defined as the “capability to prepare for, respond to, and recover from significant multi-hazard threats with minimum damage to public safety and health, the economy, and security”. However, recently there has been an increased emphasis placed to the capability of a city’s to adapt to changing conditions. This theory builds on an ideology that the city is a highly complex network of adaptive systems. In September 2015, world leaders adopted the 17 Sustainable Development Goals (SDGs) as part of the 2030 agenda for Sustainable Development. These goals officially came into force on 1 January 2016 and are expected to be attainable within 15 years. While the SDGs are not mandatory, national governments are expected to establish internal frameworks for their countries achievements. Countries also have the primary responsibility to monitor and review progress based on quality, accessibility and timely data collection. These goals are hugely important as it is estimated that 50% of world population live in urban areas, this is expected to further increase to 80% by 2050. Therefore the resilience of much of the world population will ultimately depend on the successfulness of the Urban Resilience of our cities.

THE ORIGINS OF THE ROCKEFELLER FOUNDATION'S CITY RESILIENCE FRAMEWORK

In 2012, The Rockefeller Foundation teamed up with Arup to create a City Resilience Index. What and who makes a city resilient - and not just liveable now or sustainable for the long term - was the question circulating at the time, and one that The Rockefeller Foundation wanted to use their joint expertise to focus on.

Rockefellers past contributions towards urban research have changed the way cities are designed. In 1958, The Rockefeller Foundation gave funding to Jane Jacobs, author of 'The Death and Life of Great American Cities', which challenged the prevailing assumptions of what makes a city thrive. Continuing this legacy of progressive urban thinking, the City Resilience Index aims to look at what resilience is through a critical lens.

The main aspects of resilience had to consider not only climate change, but also disaster risk reduction more generally, including financial shocks, terrorism and slow moving chronic stresses. This led onto creating a resilient framework in which cities could analyse the shocks and stresses they were up against. By setting out clear parameters, the framework then enables cities to set up strategies to improve upon problem areas in cities. The framework is multifaceted - it can provide further research for the Rockefeller Foundation on resilient cities as a whole, can set up a world-wide network of cities and provide guidelines for cities to address current problems, thus having a global impact on dealing with 21st century urban concerns.



ACCORDING TO:

THE ROCKEFELLER FOUNDATION,

A RESILIENT CITY...

DELIVERS BASIC NEEDS

SAFEGUARDS HUMAN LIFE

PROTECTS, MAINTAINS AND ENHANCES ASSETS

FACILITATES HUMAN RELATIONSHIPS AND IDENTITY

PROMOTES INFORMATION AND KNOWLEDGE MANAGEMENT

DEFENDS THE RULE OF LAW, JUSTICE AND EQUITY

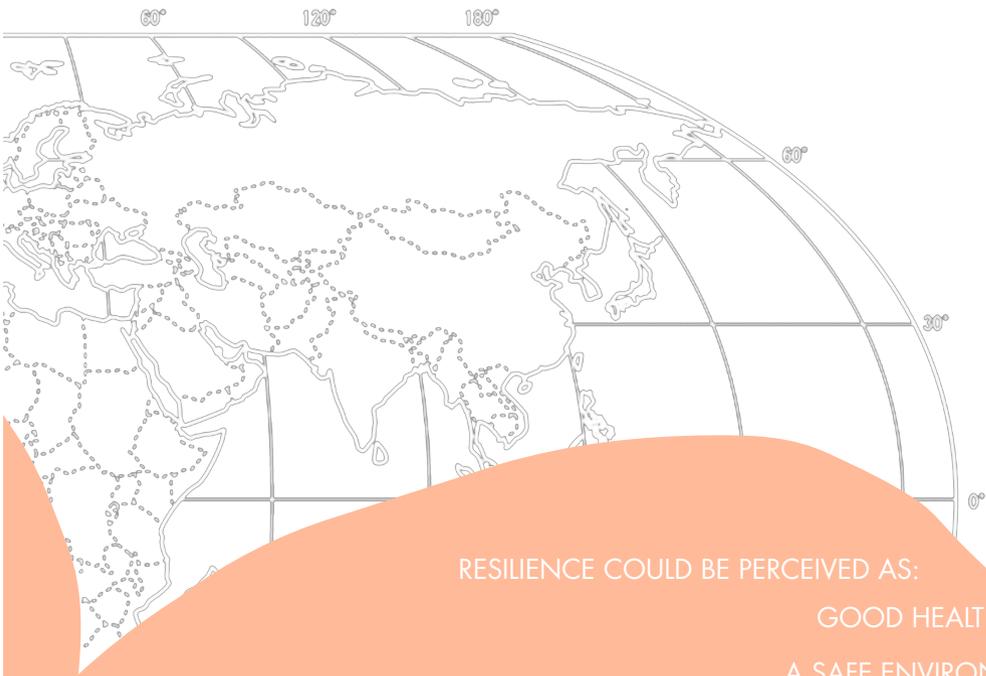
SUPPORTS LIVELIHOODS

STIMULATES ECONOMIC PROSPERITY

IS ACCESSIBLE TO ALL

PROVIDES CRITICAL INFRASTRUCTURE MANAGEMENT

PROVIDES A STRONG URBAN STRATEGY AND



RESILIENCE COULD BE PERCEIVED AS:
GOOD HEALTH
A SAFE ENVIRONMENT
SOCIAL HARMONY AND PROSPERITY

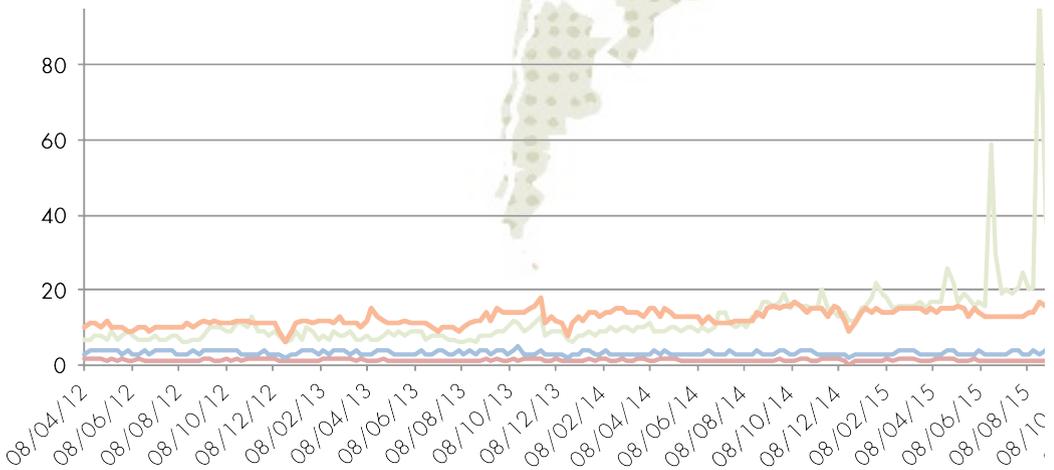
PLANNING

RESILIENCE & 100RC | A REVIEW

Almost four years after its initial launch the phased acceptance of new cities to the Rockefeller 100 Resilient Cities network is complete as the final 37 cities were revealed in May 2016. The vast network of cities across the globe look set to forge new - and develop existing - relationships as they pursue solutions which incorporate resilience into city life and infrastructure. Through this process each city looks set to explore the connection between the multiple shocks and stresses a city may face.

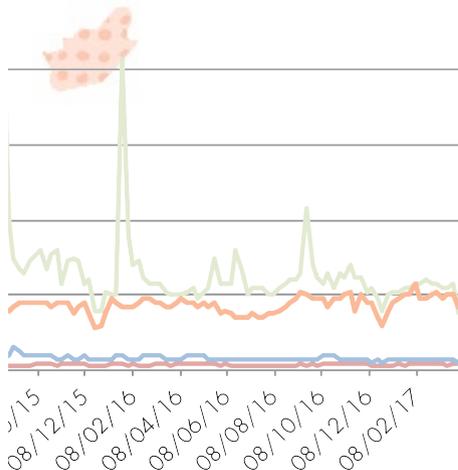
The initiative is highly regarded by all parties participating. However, it is also highly esteemed from those cities force into spectator position. For every city that made it into the final 100, many more were declined during the selection and assessment process. From launch in 2013, 100RC claim an estimated 1000 cities registered interest, with an excess of 300 qualifying for the third round appraisal process.

As the project matures, the multi million dollar investment from the Rockefeller Foundation will gradually decline. It will be intriguing to monitor the 100 resilient cities involved in the initiative and whether the level of funding and commitment to resilience continues or whether interest also gradually dwindles.



It will be this period following the culmination of the 100RC project, which will ultimately test the ideal of “resilience” as a factor in urban planning or wither it will be consigned to past jargon such as “sustainable city” or “technological city”. One of the potential issues regarding resilience is the varying topics it covers across a spectrum of cities – of varying scales - which are forced to endure differing issues – such as legacy of past public policy, environmental, or economical conditions. Additionally there seems to be a lack of any way to measure resilience – no framework has been created - as cities often have existing policy in place to tackle stresses and reaction to a shock can't be measured into the incident actually occurs.

These factors suggest the ideal of the 100RC cities project may be little more than a large-scale learning tool instigated by the Rockefeller Foundation. Despite this the participating cities seem overwhelmingly committed to the project and it's outcome.



world map conveys the term most searched online over a period from April 2012

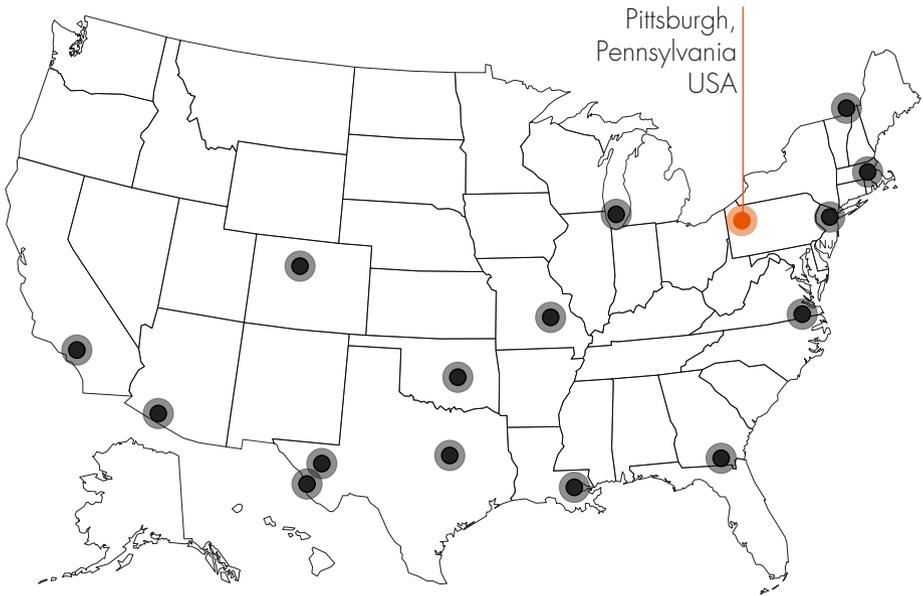
— SUSTAINABLE CITY: (WORLDWIDE)
 — SMART CITY: (WORLDWIDE)
 — CREATIVE CITY: (WORLDWIDE)
 — RESILIENT CITY: (WORLDWIDE)

RESILIENCE CHALLENGES IN EUROPE AND USA

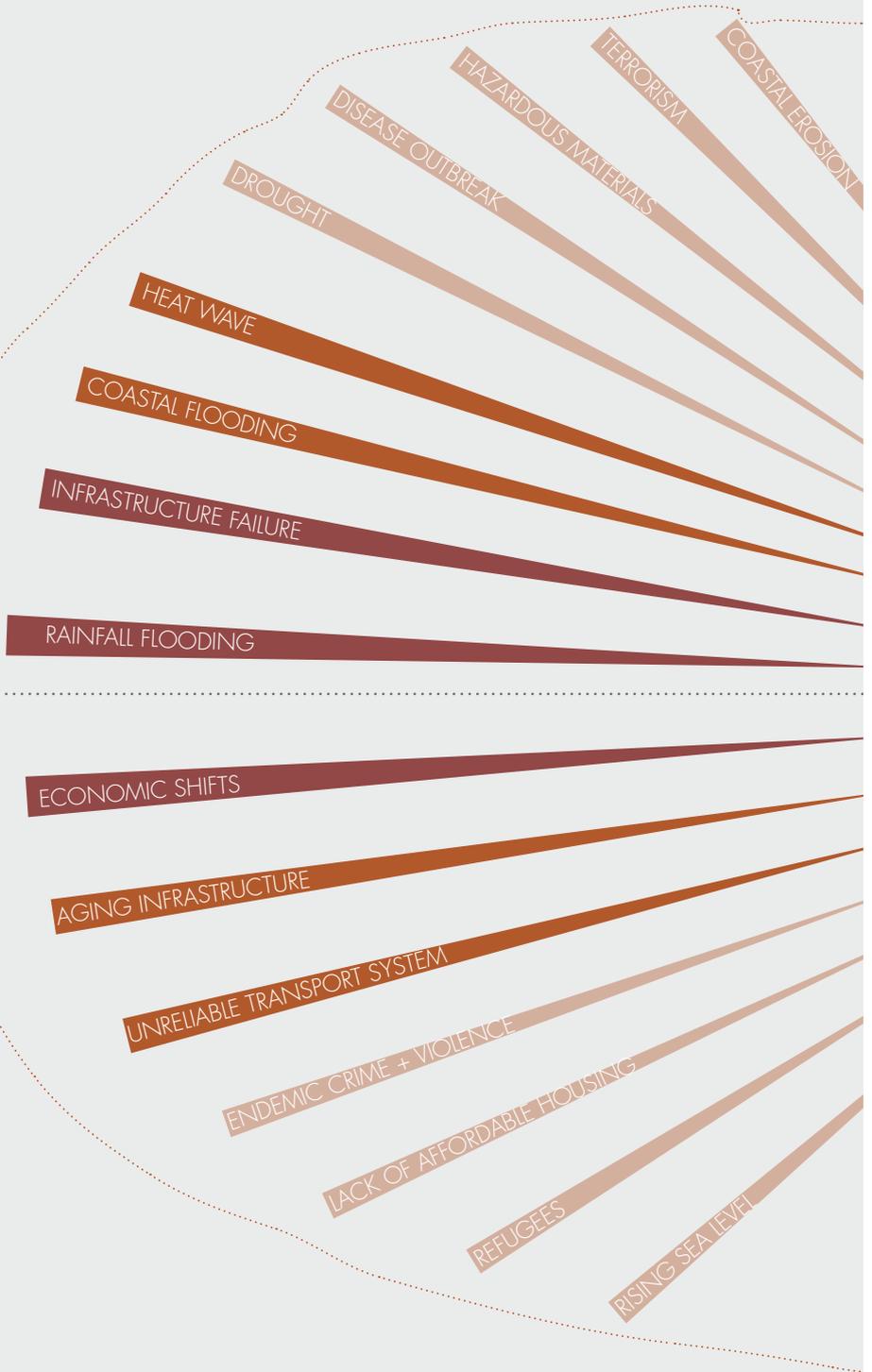
The following research was an inquiry into the resilient challenges currently impacting all American and European cities within the Rockefeller Foundation's 100 Resilient Cities Network. As part of the selection process to join the resilient network, each city had to stipulate the acute shocks and chronic stresses they face, (along with evidence of strong mayoral leadership, recent catalysts for change, history of building partnerships and team work and communication skills). The following maps depict the cities which form part of the Rockefeller 100RC - in Europe and North America.



● Cities which are part of Rockefellers 100RC Network
maps not to scale | Indicative of Europe and the United States of America



HIGH SHOCK
HIGH STRESS



RESILIENCE CHALLENGES IN EUROPE AND USA

We established the challenges each European and American city within the 100 resilient city network would like to address, organising these into 'acute shocks' and 'chronic stresses' based on the Rockefeller Foundation definitions.

From this, percentages of the highest shock and stress factors in Europe and America were revealed. The overall findings show that rainfall flooding and infrastructure failure were the main acute shocks cities face. It is interesting to note that within the parameters set for 'acute shocks', climate issues are equally as problematic as issues with the built fabric of cities. Within the 'chronic stresses' category, economic shifts, aging infrastructure and unreliable transport systems were the main problems outlined by city representatives. This helps to give our initial investigation into Glasgow and Pittsburgh's resilient strategies more context.

TROPICAL STORMS

TSUNAMI

HURRICANE

WILDFIRES

LOW

POLLUTION

POOR HEALTH

CYBER ATTACK

NO SOCIAL COHESION

POLITICAL INSTABILITY

COMMODITY PRICE

INTRACTABLE HOMELESSNESS

WATER MANAGEMENT ISSUES

ECONOMIC INEQUALITY

UNITES STATES

ACUTE SHOCK

CHRONIC STRESS

BLIZZARD

EARTHQUAKE

HEATWAVE

COASTAL FLOODING

RAINFALL FLOODING

LANDSLIDE

COASTAL EROSION

DROUGHT

WILDFIRES

HURRICANE

TSUNAMI

TROPICAL STORMS

DISEASE OUTBREAK

HAZARDOUS MATERIALS

INVASIVE SPECIES

INFRASTRUCTURE FAILURE

RIOT/CIVIL UNREST

TERRORISM

RISING SEA LEVEL

POLLUTION

POOR HEALTH

ECONOMIC SHIFTS

HIGH UNEMPLOYMENT

LACK OF AFFORDABLE HOUSING

ENERGY SHORTAGE

AGING INFRASTRUCTURE

WATER MANAGEMENT ISSUES

UNRELIABLE TRANSPORT SYSTEM

ECONOMIC INEQUALITY

COMMODITY PRICE

REFUGEES

SOCIAL INEQUALITY

POVERTY

AGING/DECLINING POPULATION

ENDEMIC CRIME AND VIOLENCE

INTRACTABLE HOMELESSNESS

CYBER ATTACK

NO SOCIAL COHESION

POLITICAL INSTABILITY

EUROPE

ACUTE SHOCK CHRONIC STRESS

EARTHQUAKE

HEATWAVE

COASTAL FLOODING

RAINFALL FLOODING

RISING SEA LEVEL

LANDSLIDE

COASTAL EROSION

POLLUTION

DROUGHT

POOR HEALTH

DISEASE OUTBREAK

HAZARDOUS MATERIALS

ECONOMIC SHIFTS

HIGH UNEMPLOYMENT

LACK OF AFFORDABLE HOUSING

ENERGY SHORTAGE

INFRASTRUCTURE FAILURE

AGING INFRASTRUCTURE

WATER MANAGEMENT ISSUES

UNRELIABLE TRANSPORT SYSTEM

ECONOMIC INEQUALITY

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RIOT/CIVIL UNREST

SOCIAL INEQUALITY

POVERTY

TERRORISM

AGING/DECLINING POPULATION

ENDEMIC CRIME AND VIOLENCE

INTRACTABLE HOMELESSNESS

CYBER ATTACK

NO SOCIAL COHESION

POLITICAL INSTABILITY

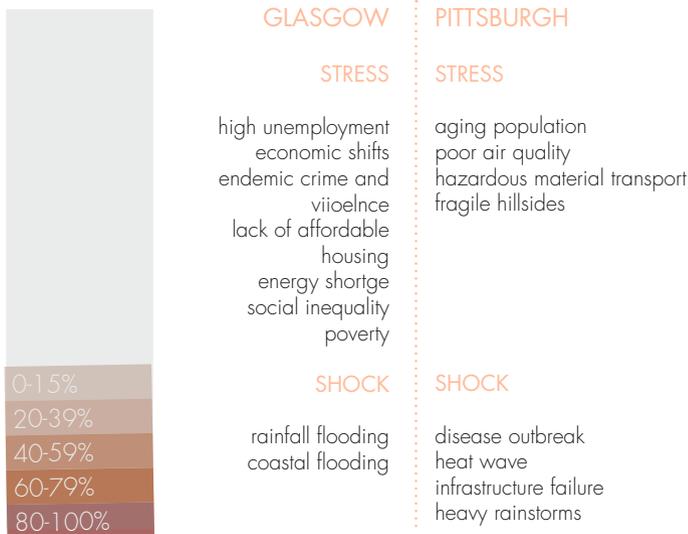
RESILIENCE CHALLENGES : EUROPE

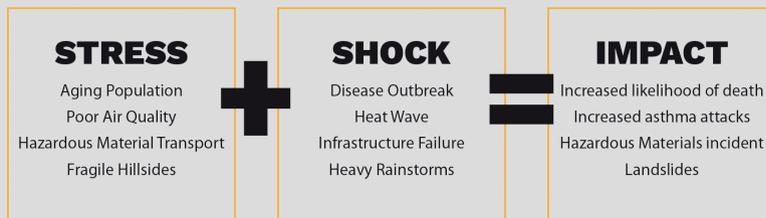
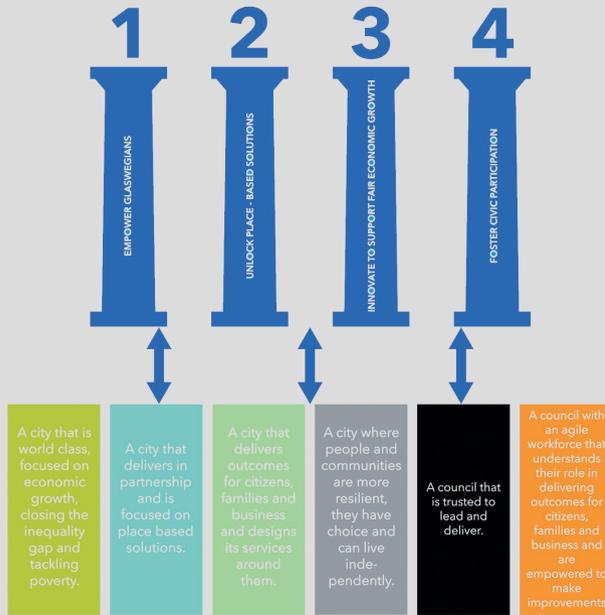
Although the data collection highlighted rainfall flooding in Europe as the highest resilient challenge with 60-79% of cities affected, European cities face more chronic stresses than acute shocks. 'Refugees' was the highest chronic stress, with 47% of European cities highlighting this problem. Terrorism ranked higher in Europe than in North America, but was not raised as a challenge in either Pittsburgh or Glasgow.

How Glasgow compares with its European counterparts after unravelling their city strategy, is that there is a stronger demand to create place based solutions to improve long term socioeconomic problems to help combat the chronic stresses.

It is evident that Glasgow and Pittsburgh both want to improve social equality, by dealing with unemployment, poverty, lack of unaffordable housing and crime.

This investigation has set the ground work for our comparative analysis on Glasgow and Pittsburgh resilient strategies. By outlining, the main problems each city face within a wider context, we can start to analyse the city's approach in more depth. By also discovering the ambiguity of the guidelines in place, we can start to look at other definitions and sources for a more focused line of research.





RESILIENT STRATEGIES: GLASGOW AND PITTSBURGH

Glasgow and Pittsburgh were both selected to be part of the 100 Resilient Cities Network, displaying resilience in their transition to post-industrial city. The industrial revolution in the beginning of the 1800's and subsequent industrial decline a century and a half later, not only represents a vibrant testimony of the resilient urban fabric through their ability to adapt and reinvent, but distinguishes a period in history that defines both cities to this day. Glasgow and Pittsburgh are defined by their industrial successes, and have both been selected as comparable European and North American post-industrial cities due to their similarities in scale and history, yet different climatic, socio-economic, political and cultural conditions. This sets the context within which to compare their resilient strategies.

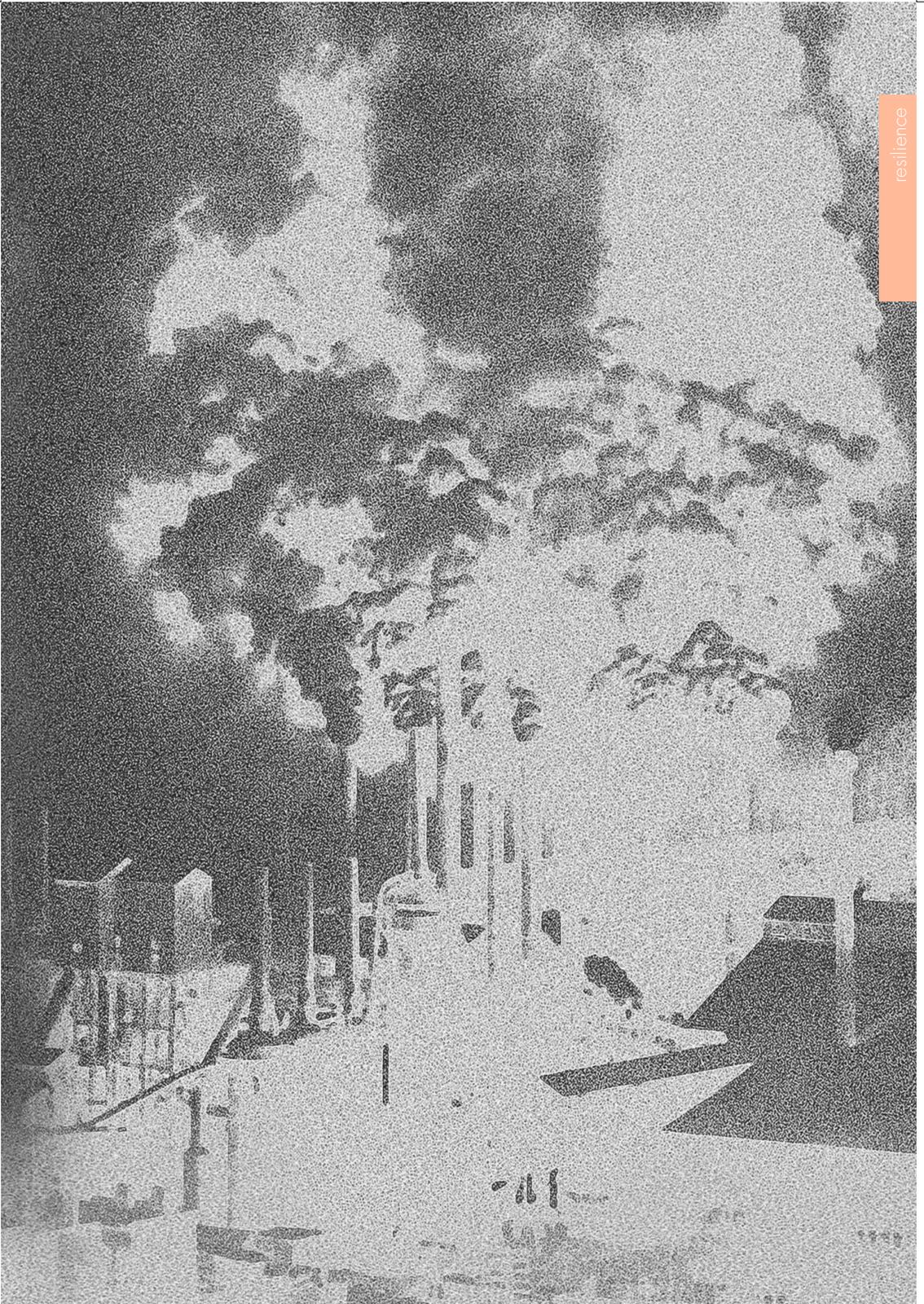
Glasgow and Pittsburgh have focused on community development and civic participation as a way of integrating into planning and 'place'. A strong focus on community empowerment through provision of necessary facilities is evident in Glasgow's appeal to work closer with 'the third sector' to achieve this. Not for profit organisations have the skills in developing community based solutions that are unique to each setting, therefore by incorporating this into a resilient plan, solutions can be more direct. Additionally, both cities have addressed the need to allow the communication between the public, the public sector, the council and community groups to be effective in delivering strategies that support communities and neighbourhoods.

Environmental elements have played a role in both city strategies to improve on the conditions caused by industry, but also to respect the environment in ongoing developments. In a public survey carried out for Glasgow's Resilient Strategy, it reveals that 'people value and want to see their local environment nurtured and protected'. Similarly in Pittsburgh, it questioned the methods to use resilience to protect their local environment and be responsible, proactive citizens. The request to react to climate change by lowering the carbon footprint is a clear goal set by both cities, yet seems to be more of an objective in Pittsburgh's Action Plan. As adaptive reuse lowers the embodied energy required for construction, it suggests a sensible strategy for development that has a positive impact on the environment. It is evident that Glasgow and Pittsburgh aim to use as much of their existing assets as possible to meet the social problems outlined in their resilient strategies. As both cities have already engaged in adaptive reuse for buildings, communities and neighbourhoods, further exploration into the benefits and implementation will help to support the use of it as a resilient planning principle in cities.

RESILIENT STRATEGIES: GLASGOW AND PITTSBURGH

Glasgow's shipbuilding and Pittsburgh's steel manufacturing industry transformed their urban landscape with industrial factories, warehouses, workshops and facilities that dominated the river fronts, inner city and city periphery. The population increased as job opportunities and economic stability allowed communities to grow and neighbourhoods to develop. Yet environmental qualities and public health led to chronic stresses, affecting the overall quality of life for people in many areas. As demand for industries weakened, both cities were left to address the onset of social, economic and environmental problems developing from the rise and fall of industry. In 2016, Glasgow and Pittsburgh both released resilient strategies outlining key concerns to be addressed, most of which have been exacerbated by industry and climate change.

Land dereliction and vacant buildings have been a growing concern in both cities, as living adjacent to these sites induced a lack of pride, increased crime rate and inflated the already apparent social and economic deprivation following the decline. Issues that arise are land contamination, land ownership, high cost risk and no public or private interest, turning them into 'brownfield sites', defined as: "abandoned, idled, or under-used industrial or commercial facility where expansion or redevelopment is complicated by real or perceived environmental contamination." In turn, brownfield sites fall into the category of 'static space', a label given to the end result of city planning action within an economy driven environment. These spaces do not answer the needs of the public. Therefore, in Pittsburgh's resilient strategy, they raised questions on how to optimise land use to better support affordable housing, economic growth, community development, and stormwater management. As these issues have become major stresses on the social stability of the city, this indicated that reusing under-utilised spaces should be socially driven. Similarly, Glasgow's resilient strategy promotes the 'use of existing assets to create healthy, safe and inclusive spaces for the community to network, helping mitigate social isolation. The focus on tackling social inequality is clear and has indicated that reuse will be paramount to the delivery of this strategy.



RESILIENCE: A LITERATURE REVIEW

RESILIENCE

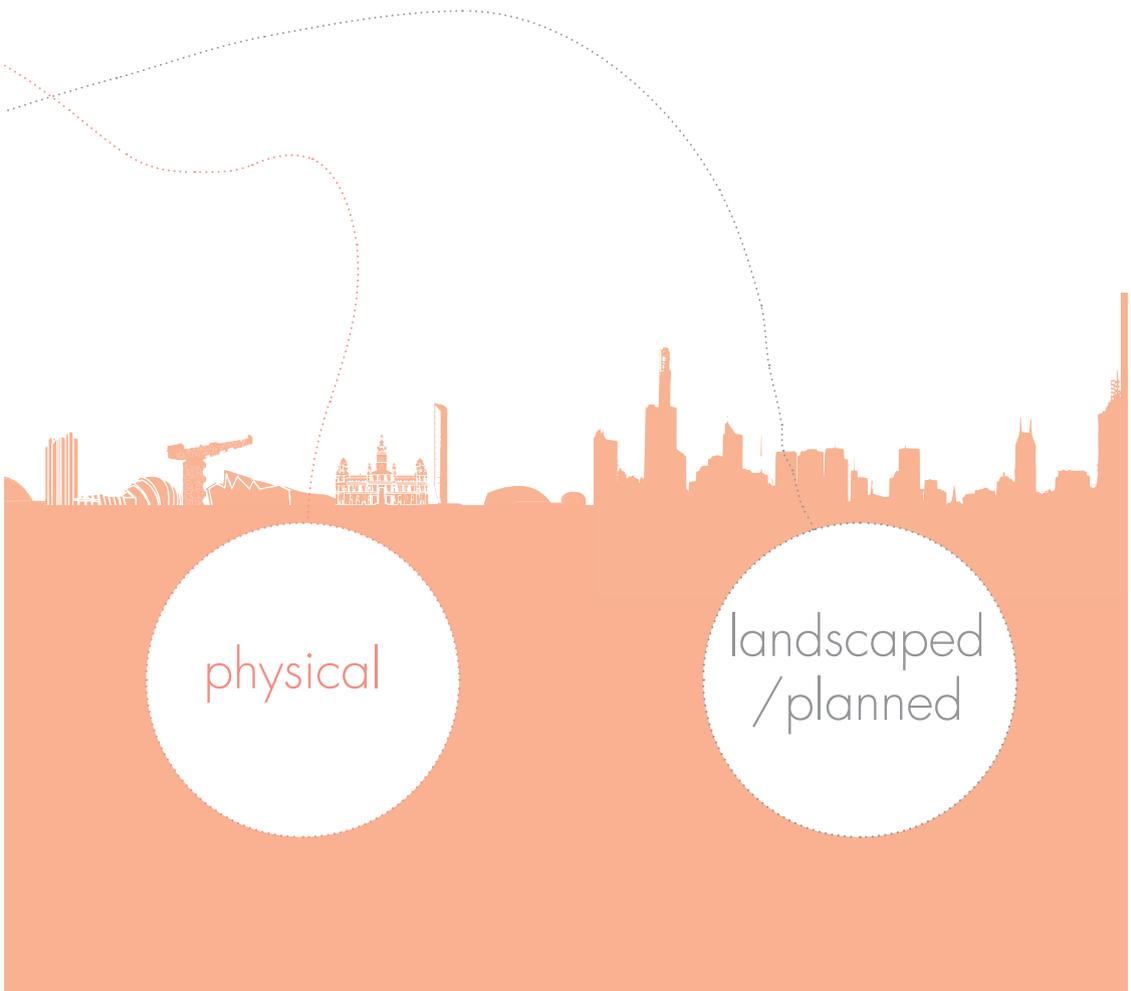


social/
community

ecological

Following analysis of the Rockefeller Foundations 100RC programme and the resilience strategies of Glasgow and Pittsburgh, it is evident that the concept of resilience varies from city to city. This can be attributed to the different shocks or stresses a city may experience. We have identified four principle factors that we feel are most applicable to various city resilience strategies. These factors were further investigated to help determine our definition of resilience.

The topics selected for further investigation are -



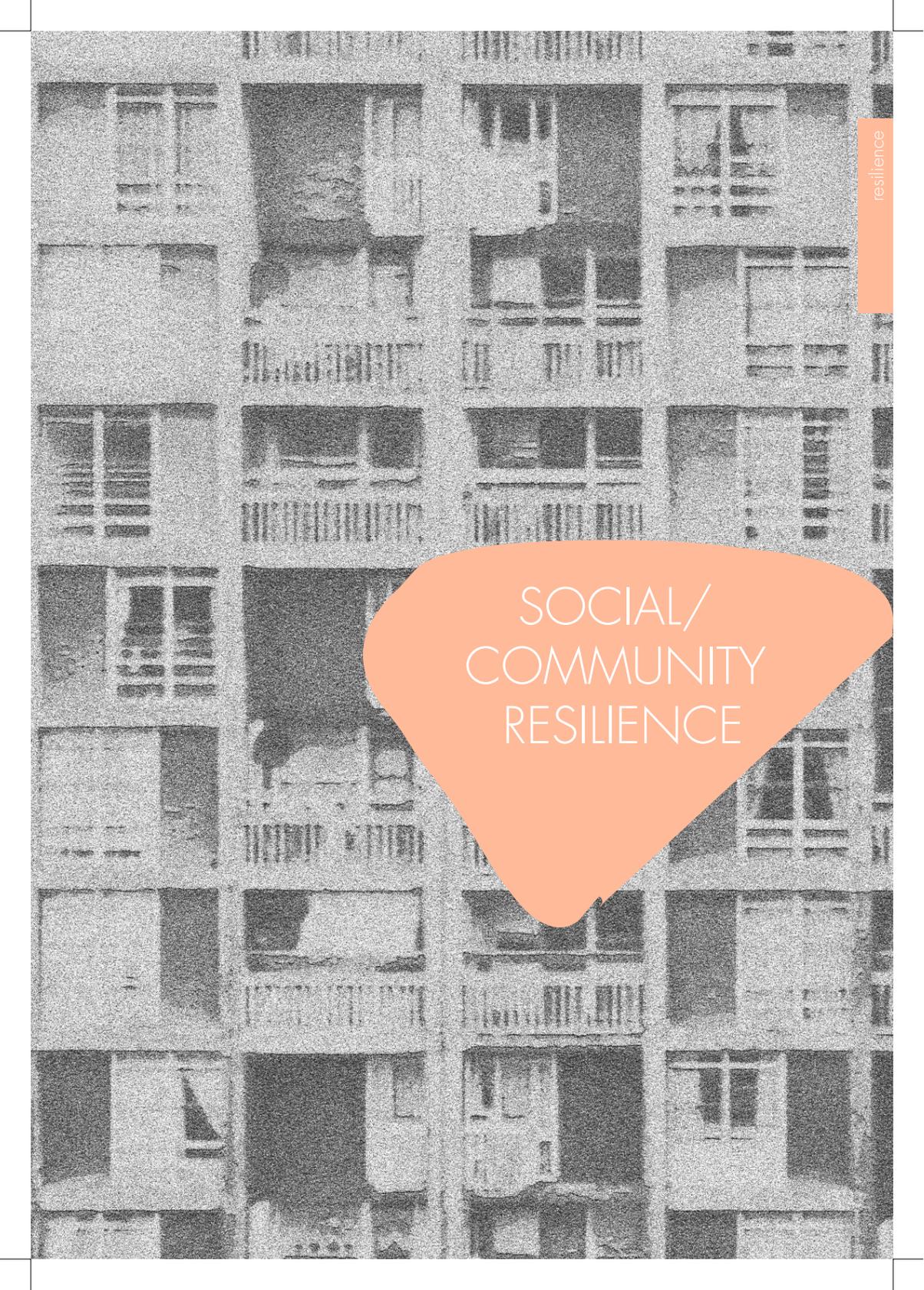
physical

landscaped
/planned

"We use the term "social resilience" to refer to the capacity of groups of people bound together in an organization, class, racial group, community, or nation to sustain and advance their well-being in the face of challenges to it... we look for the institutional and cultural resources that underpin resilience in the wider social environment."

"...we use this broader conceptualization of resilience to define the term as an adaptive response to adversity through the three processes of recovery, sustainability, and growth." Bailey, David. *Social Resilience in the Neoliberal Era*. Edited by Hall Peter A. and Lamont Michèle. Cambridge: Cambridge University Press, 2013.

Murray, Kate, and Alex Zautra. "Community resilience: Fostering recovery, sustainability, and growth." In *The social ecology of resilience*, pp. 337-345. Springer New York, 2012.



SOCIAL/
COMMUNITY
RESILIENCE

SOCIAL RESILIENCE LITERATURE REVIEW

The resilience theory promotes the notion that the ability to persist through adaptation can be fostered, and this attitude can strengthen a city in the face of 21st Century challenges. A publication in 2010 from the Centre for Local Economies Strategies, an independent UK think tank, takes the opinion that, “resilience is about understanding the ability of a place to respond to the challenges that it faces,”¹ -understanding what makes some places persist after crisis and others fail. An over-reliance on, “the assumption that more growth would lead to more fairness for all and better quality of life”,² is a comment on the way past economic development strategies have operated. Instead, it is suggested that city’s should focus on place-based resilience, which dictates that if a shock were to happen a place can resist failing and persevere because location, culture and identity, and community aspirations have been empowered. This new wave of economics is establishing that ‘social economy’ is just as important as commercial and public economy for resilience, “both directly through local employment, local supply chains, volunteering and social enterprise, but also indirectly through development of social capital and promotion of civil engagement and participative democracy.”³ Empowering the social economy, simply means empowering the existing local organisations, which in effect provides the locality with resources and relations to persevere through crisis.

Social resilience is the capacity of groups, such as minority group or communities, to advance their welfare in the face of challenges.⁴ It has been expressed by Professors of Sociology at Harvard that the neoliberal era has deepened the stress on stigmatised groups and thus undermined there resilience, “in the current period of growing economic inequality, members of

¹ Neil Mcinroy and Sarah Longlands, *Productive Local Economies: Creating Resilient Places*, 2011.

² *Ibid.*

³ Neil Mcinroy and Sarah Longlands, *Productive Local Economies: Creating Resilient Places*, 2011.

⁴ Peter A. Hall and Michèle Lamont, *Social Resilience In The Neoliberal Era*, 1st ed. (Cambridge: Cambridge University Press, 2013), 2.

stigmatized groups are often more vulnerable.”⁵ Notably, Glasgow’s City Strategy, as outlined in Rockefeller’s ‘100 Resilient Cities’ and on Glasgow City Council’s website, corroborates this belief in the importance of a just city, through choosing to adopt a social approach to resilience as opposed to an ecological approach. Glasgow City Council’s Resilience Strategy states, “autonomous and resourceful communities are crucial for a more resilient city”⁶ - making the fostering of community resilience central to their strategy to foster city resilience.

Furthermore in key literature, *Resilience thinking, Sustaining Ecosystems and People in a Changing World*, ‘social capital’ is listed as one of the nine defining features of what a resilient world would constitute of. Social capital is defined as, “trust, well-developed social networks, and leadership,”⁷ which work in concert to craft an environment for adaptability. This all starts to build a picture of how thinking about the social fabric of a city, namely stigmatised communities, strengthens the city as a whole in terms of facing “acute shocks” and “chronic stresses,”⁸ but also proposes the question: what fosters resilience amongst communities?

The way in which communities of people foster resilience can be through a number of forms, though it is in Hall and Lamont’s view, authors of *Social Resilience In The Neoliberal Era*, that the process of building resilience is less like a rigid framework of rules and more like a “creative processes in which people assemble a variety of tools, including collective resources and new images of themselves.”⁹ Goldstein’s view, author of *Collaborative Resilience, Moving Through Crisis to Opportunity*, is that unlike ecological resilience which instils a systems-based thinking supported by scientific methods, social

⁵ Michele Lamont, Jessica S. Welburn and Crystal M. Fleming, “Responses To Discrimination And Social Resilience Under Neoliberalism”, in *Social Resilience In The Neoliberal Era*, 1st ed. (Cambridge: Cambridge University Press, 2013), 132.

⁶ Alastair Brown et al., *Our Resilient Glasgow, A City Strategy* (Glasgow: Glasgow City Council, 2016), <http://lghhttp.60358.nexcesscdn.net/8046264/images/page/-/100rc/pdfs/Glasgow%20Strategy%20PDF.pdf>.

⁷ Brian H. Walker and David Salt, *Resilience Thinking: Sustaining Ecosystems And People In A Changing World*, 2012, 147.

⁸ Brian Evans et al., *The Resilient City Glasgow & Pittsburgh (Draft)*, n.d. , 11.

⁹ Peter A. Hall and Michèle Lamont, *Social Resilience In The Neoliberal Era*, 1st ed. (Cambridge: Cambridge University Press, 2013), 14.

resilience is most effectively garnered through collaborative means¹⁰, such as participation and public action. A well-established figure of speech used to generally describe resilience is the notion of 'bouncing back', however Goldstein expresses that it is too simplistic a metaphor for resilience in the social context because, "the dynamics of a bouncing ball and a society in crisis are not the same."¹¹ Goldstein rather emphasises the collaboration between resilience thinking and the practice of resilience which develops "both a process and an outcome of collective engagement with social-ecological complexity".¹²

Resilience in the social context can therefore be concluded as empowering groups of people, such as local organisation or stigmatised groups, in order to strengthen social capital. Specifically, it is thought to be garnered through the ability to learn and adapt, and through collective collaboration efforts. This means that through communicative or participatory means groups of people can build their collective resilience. Finally, these resilient communities who engender social capital help to build a more resilient city, which is something Glasgow City Council are specifically trying to emulate.

¹⁰ Bruce E. Goldstein, *Collaborative Resilience, Moving Through Crisis To Opportunity*, 1st ed. (Cambridge, Mass.: MIT Press, 2011), 360.

¹¹ *Ibid.*

¹² *Ibid.*

SOCIAL ENVIRONMENTS IN GLASGOW AND PITTSBURGH

It has been argued that the United Kingdom and the United States have comparable social environments as a result of their laissez-faire policies which changed the structure of social relationships: "Large gains at the top of the earnings distribution have not been matched in the lower half ... The result has been an unprecedented concentration of wealth in the hands of the corporate class in the United States and United Kingdom and rising intergenerational inequality..."¹³ Hall and Lamont's analysis suggests that the thinking attributed to Thatcherism in the UK and Reaganism in the US has created growing inequalities in the respective countries.¹⁴ Generally, the younger generation find themselves less well-off than their older counterparts and with less opportunities,¹⁵ and those in the lower socio-economic strata have less opportunities and more hardships. This income distribution inequality alongside intergenerational inequality undoubtedly are chronic stresses on the social fabric of the two countries.

As a result of de-industrialisation and population decline, "Glasgow's people have experienced chronic levels of stress which have produced profound disparities in income, health and opportunity... Glasgow continues to have the poorest life expectancy in Scotland for both men and women, rich and poor."¹⁶ Glasgow City Council's report confirms that the aforementioned unequal income distribution in the UK applies profoundly in Glasgow, suggesting great inequalities between the most affluent areas and the most deprived areas. The Glaswegian social environment also struggles with the major stress of poor health, which is in marked contrast to the rest of Scotland.

Similarly to Glasgow, Pittsburgh "faces significant challenges with social, racial, and economic inequities that have persisted for decades, which have led to unequal access to housing, transportation, employment, and

¹³ Peter A. Hall and Michèle Lamont, *Social Resilience In The Neoliberal Era*, 1st ed. (Cambridge: Cambridge University Press, 2013), 7.

¹⁴ Will Kymlicka, "Neoliberal Multiculturalism?", in *Social Resilience In The Neoliberal Era*, 1st ed. (Cambridge: Cambridge University Press, 2013), 99-125.

¹⁵ C. W., "Britain's Millennials The Real Intergenerational Inequity", *Economist.Com*, 2016, <http://www.economist.com/blogs/freeexchange/2016/03/britainsmillennials>.

¹⁶ Alastair Brown et al., *Our Resilient Glasgow, A City Strategy*, 2016, 16.

services.¹⁷ It is noted by Pittsburgh's Department of City Planning, that due to unequal income distribution and "residential segregation"¹⁸ many Pittsburghers from racial groups or minority communities are excluded from opportunities. Where Glasgow has concentrated on the health poverty that affects both poor and rich, Pittsburgh has decided to challenge the specific social inequality which undermines the black population and other ethnic minorities. Glasgow is the most ethnically diverse city in Scotland,¹⁹ and therefore multiculturalism is an important aspect of the social environments of Glasgow and Pittsburgh. Presently, the two cities engage with multicultural policies, in order to ensure laws reflect the needs and aspirations of minority groups. This is something which will be examined to a greater degree within this research project, specifically in relation to the travelling showpeople in Glasgow.

¹⁷ *Pittsburgh's Resilient Strategy* (Pittsburgh: City of Pittsburgh Department of City Planning, 2017), http://lghhttp.60358.nexcesscdn.net/8046264/images/page/-/100rc/pdfs/Pittsburgh_-_Resilience_Strategy.pdf.

¹⁸ *Ibid.*

¹⁹ Alastair Brown et al., *Our Resilient Glasgow, A City Strategy*, 2016, 16.

used to describe and predict the behaviour of marine fisheries, grassland prairies, and deltaic processes

ecosystem- based management practices

“ i) the amount of change the system can undergo and still retain essentially the same structure, function, identity, and feedbacks on function and structure, ii) the degree to which the system is capable of self-organisation, and iii) the degree to which the system expresses capacity for learning and adaptation (www.resalliance.org).”

(On Ecological Systems) “The ability by an individual, group, or organization to continue its existence (or remain more or less stable) in the face of some sort of surprise. . . . Resilience is found in systems that are highly adaptable (not locked into specific strategies) and have diverse resources.”

Quinlan, A. “Resilience and adaptive capacity: Key components of sustainable social-ecological systems.” Newsletter of the international Human Dimensions Programme on Global Environmental Change (IHDP) 2 (2003).

Longstaff, Patricia H. “Security, resilience, and communication in unpredictable environments such as terrorism, natural disasters, and complex technology.” Center for Information Policy Research, Harvard University (2005).

“Understanding and managing the dynamic Interactions between human and natural systems at the city, regional and planetary scale”
(Fleming, Billy. “Lost in Translation: The Authorship and Argumentation of Resilience Theory.” *Landscape Journal* 35, no. 1 (2016): 23-36.)

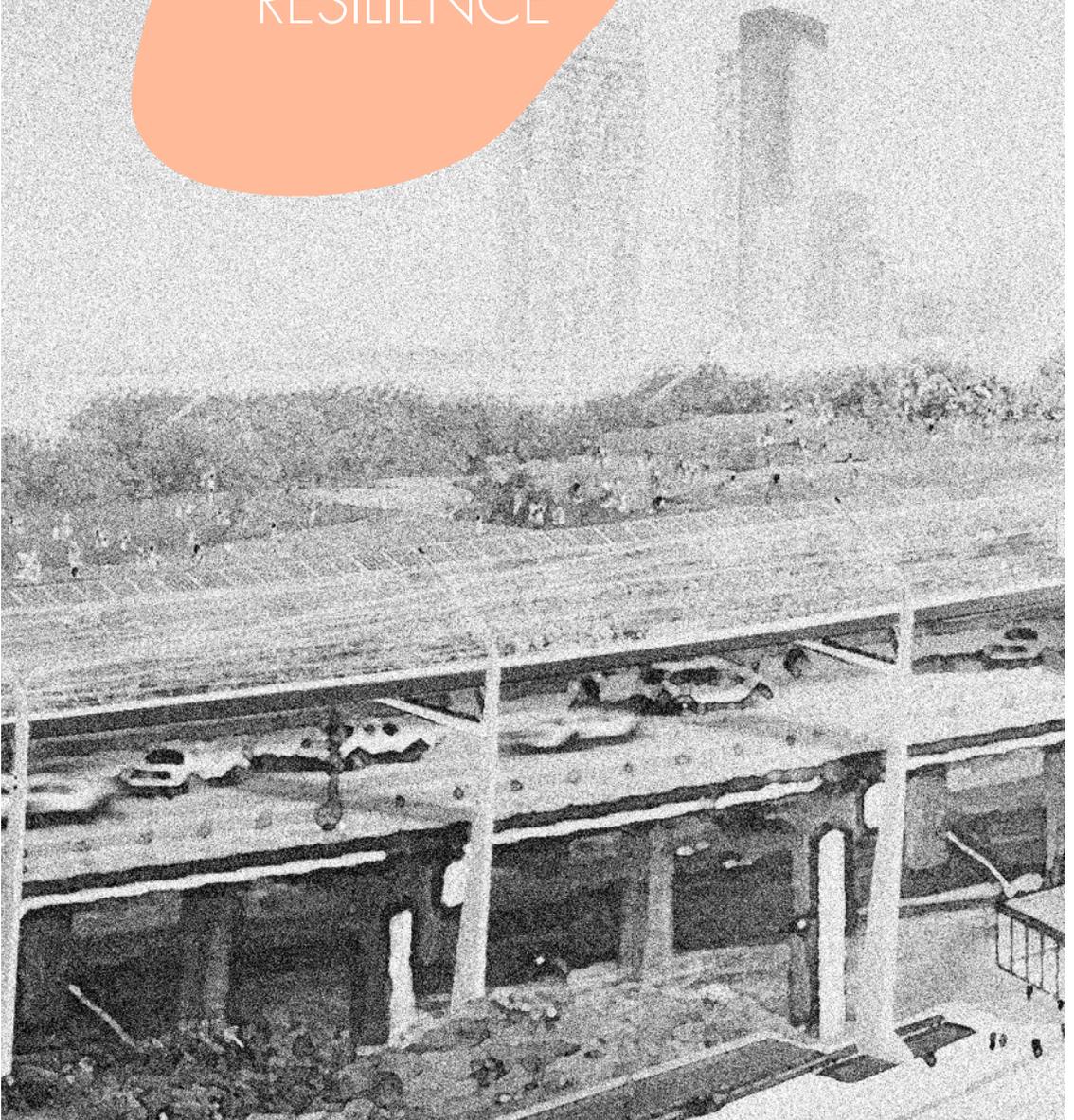
ECOLOGICAL RESILIENCE



Infrastructure including: urban drainage, energy production and distribution, and flood protection

“Engineering resilience is rooted in the principles of risk management and is generally concerned with identifying the optimal configurations and material choices necessary to minimize the effects of a catastrophic event.”

PHYSICAL RESILIENCE



PHYSICAL URBAN FABRIC

Currently, the number of vacant buildings in cities is on the rise, yet new construction still continues.¹ Buildings become obsolete for many reasons. Abandoned buildings suffer from lack of maintenance which leads to an appearance of blight and decay. In turn, this can compound social and economic problems that frequently accompany neighbourhoods suffering from building disuse. Areas become devalued and the vitality, density, community, identity and historic significance that once existed becomes diminished. As well as this, are the added environmental implications this has on cities. Climate change has instigated a questioning of the methods of development and management of the existing building stock. Therefore, finding alternative uses for vacant buildings can be a sustainable response in building a strengthened and resilient community, neighbourhood and urban fabric.

Land dereliction and vacant buildings have been a growing concern in both cities, as living adjacent to these sites induced a lack of pride, increased crime rate and inflated the already apparent social and economic deprivation following the decline. Issues that arise are land contamination, land ownership, high cost risk and no public or private interest, turning them into 'brownfield sites', defined as: "abandoned, idled, or under-used industrial or commercial facility where expansion or redevelopment is complicated by real or perceived environmental contamination." In turn, brownfield sites fall into the category of 'static space', a label given to the end result of city planning action within an economy driven environment. These spaces do not answer the needs of the public. Therefore, in Pittsburgh's resilient strategy, they raised questions on how to optimise land use to better support affordable housing, economic growth, community development, and stormwater management. As these issues have become major stresses on the social stability of the city, this indicated that reusing under-utilised spaces should be socially driven. Similarly, Glasgow's resilient strategy promotes the 'use of existing assets to create healthy, safe and inclusive spaces for the community to network, helping mitigate social isolation.' The focus on tackling social inequality is clear and has indicated that reuse will be paramount to the delivery of this strategy.

the translation of principles into physical form, designing for resilience

“Building resilience capacity through landscape and urban planning requires that planners and designers identify the stochastic processes and disturbances that a particular landscape or city is likely to face, the frequency and intensity of these events, and how cities can build the adaptive capacity to respond to these disturbances while remaining in a functional state of resilience... Resilience capacity also requires building an adaptable social infrastructure to assure meaningful participation and achieve equity in the face of socio-economic change and disturbance, and meaningful participation by stakeholders in planning and policy decisions”

Ahern, J. (2011) 'From fail-safe to safe-to-fail: Sustainability and resilience in the new urban world', *Landscape and Urban Planning*, 100(4), pp. 341–343. doi: 10.1016/j.landurbplan.2011.02.021.

Design resilience is mainly concerned with the translation of ecological principles into physical form and can be categorised into two main themes: how urban designers and planners respond to disaster recovery efforts in terms of design and how the field responds to “pre-emptive process of climate change adaptation.” (Fleming, Billy. “Lost in Translation: The Authorship and Argumentation of Resilience Theory.” *Landscape Journal* 35, no. 1 (2016): 23-36.)



LANDSCAPE/
PLANNING
RESILIENCE

LITERATURE REVIEW 1 - INTERPRETING RESILIENCE THEORY IN URBAN STUDIES + APPLYING TO PRACTICE

'Resilience' has been a growing phenomenon in the urban studies discourse, as a reaction to the problems that 21st century cities face. To unravel the key principles, the literature analysis will look at how the interpretations of resilience theory have influenced urban studies and applying resilience theory to practice.

The concept 'urban resilience' has become a product of the internal and external factors inflicted on a city on a daily, cyclical or on a sporadic basis. The Rockefeller foundation – an agency focused on building resilience into cities, defines this theory as:

'the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience'.

Describing acute shocks as 'sudden sharp events that threaten a city', this statement relates to the frequent natural disaster occurrences that interrupt cities globally. Considering the increase in catastrophic events caused by climate change in recent years, as well as other external forces (such as terrorism, disease outbreaks), the domino crippling effect of such disasters, calls into question: how can we prepare and how can we strengthen our cities resilience?

This question tries in many ways, to respond positively to the natural flux and changes of a city. Population growth through industrialisation, subsequent dispersal of inner city population through the 'Garden City' movement, technology advancement and failure in infrastructure are just some of the past events and issues that have shown a city's contingency. Notwithstanding the impact this has on an individual, this statement will first engage with the complex structuring of the city.

In *Urban Resilience: A Transformative Approach*, the authors generalise the taxonomy of resilience theory, covering multi disciplines, breaking it into type of shock, characteristic of target system and type of recovery. He refers to the types of recovery systems as 'structural, functional and transformative'.

These different system types describe aspects of the ecological, engineering, social and design perspectives of resilience theory which all derived from ecology theorist Holling's studies in 1973. Holling's studies on the adaptive cycle of ecosystems have become the basis for what is known as urban resilience or 'adaptive resilience' – identifying growth, conservation, release then renewal. The ecological interpretation expanded upon by Berkes, Folke and Janowicz shows the ability of these systems to absorb and cope with the changing circumstance. Contrastingly, the engineering interpretation does not go through this transformative process, as it bounces back to its previous 'stable' state, remaining unchanged. Landscape author Billy Fleming, uses the two theories to distinguish resilience from sustainability. He believes sustainability is not operational in cities because of their sheer scale as it follows the principle of returning to the previous level of stability. Resilience on the other hand, is more dynamic, it is non-linear, and it embraces uncertainty (Fleming 2016). Therefore sustainability mitigates problems, whereas resilience adapts and transforms. As the uncertain nature of cities has already been established, the move towards the ecological perspective is clear. Although Fleming describes the ecological theory to 'consume' urban studies, leaving social matters to falter, author Leema Iloa backs up the concept by applying this complex adaptive system (CAS) to cities. A structure that is modifying all the time, self-organises, and moves from one state to another – the city needs to adopt a strategy with a similar structure.

Urbanist Susannah Hagan (2015) also discusses resilience from an ecological perspective in relation to adaptation rather than domination, believing there should be a cohesive synergy between the natural and man-made elements in the city. Her perspectives focus on introducing a holistic approach to city planning and disputes efforts made by post-industrial cities in rethinking their 'metabolic systems'. This statement links to the comparative analysis between Glasgow and Pittsburgh. Both post-industrial cities, and part of the 100 Resilient City Network, their implementation of a city wide strategy is the focus for this study. However, what needs to be established first, is what information is in place for them to do so.

APPLYING RESILIENCE THEORY TO PRACTICE

Different organisations have set up globally to conduct research and help inform cities on strategies towards urban resilience. They provide assessment tools to help categorise the acute shock or chronic stress a city is facing. This can then inform what strategy is to be taken. The Rockefeller Foundation, joined with Arup, UN Habitat disaster management systems, New Zealand based method, the Strategy Alliance and Global X Network have all published research for incorporating resilience into strategic thinking.

The Rockefeller Foundation's '100 Resilient City Framework', has set up a network of cities globally, creating a platform to share knowledge and expertise to learn from one another and adopt strategies that deal with the magnitude of issues. What becomes apparent through the literature on the subject though, is the difficulty in implementation. In *Defining Urban Resilience*, the author makes it apparent through quoting the large quantity of literature on the subject, that there are ambiguous definitions of how to respond to a shock of a stress.

Guidelines tend not to focus on timescale, which Yamagata and Maruyama (2016) believes to be key in establishing a quick recovery response strategy. What author Sanchez et al goes on further to say about implementation, is that the resilience strategies which aren't effective, are the reactive, short term, narrow-focused solutions, which tend to apply after an immediate shock. That is to say that there needs to be a quick solution after a disaster, but what needs to be further established, is how the preparation time is achieved.

The literature analysis on urban resilience revealed how its derivative has influenced urban planning on a social, ecological and cultural level. It is interesting to note the shift from sustainability to resilience has been a pragmatic and natural response to the evolution of city planning. Urbanist Susannah Hagan made important contributions to the debate of ecology and the built environment in cities. It is clear that the adaptive process is a key approach when building resilience into city planning. This has instigated a focus on analysing how adaptive reuse of existing buildings in cities can be a utilised method of urban resilience.

LITERATURE REVIEW 2 - WHAT IS RESILIENCE?

Architecture in the City have been through various paradigms relating to science, technology, economy and policy. Urbanisation has been accelerated from the technological revolution starting at the United Kingdom in the mid-eighteenth century according to change of socio-economic structure. After this period, concentric zone theory, compact city and smart city theory were claimed. Over a process of time, old Downtown caused other problems which led to urban regeneration, restoration and environmentally friendly architecture.

These paradigms have been generated to solve urban problems. Urbanisation has caused a shortage of accommodation resulted from population growth, poor hygiene, inequality. Garden city, satellite city, linear city were meant to improve them.

The Rockefeller Foundation has defined a resilient city by elements that cause urban problems over time. There are two categories; one are short term shocks that occur immediately and damage the city in a brief space of time. Another are long-term stresses that damage prolongedly.

Resilient city might be defined as the city which has ability to prevent and manage the problems. Long-term stresses might be able to be controlled since there is a time to recognize and handle the problems while short-term shocks could not be. The way to reduce the damage of short-term shocks is fast recovery after the shocks. Thus, elements can also be classified by predictability. Most long-term stresses can be anticipated. The lack of infrastructure can also be predicted from survey of rate of move. On the other hand, even though the meteorologist can forecast rain and snow, it is hard to prevent floods and drought.

A Resilient city needs to be able to recover and improve the urban issues economically, politically, socially and ecologically. A Resilient city, however, needs to focus more on the unpredicted problems.

LITERATURE REVIEW 3 - WHAT IS SOCIAL RESILIENCE?

Initially “resilience” seems like an inclusive measurement of determining the ability of a city to endure or avoid “shocks and stresses”. However, following analysis of the term - and its connotations - it is evident resilience is a much broader issue which covers a spectrum of issues. As the concept has evolved it has become apparent the social resilience of society within a metropolitan areas is a pivotal factor in the resilience of the wider area. Social resilience could be categorised a “stress”, as it has the capability to weaken the fabric of a city over a prolonged period of time.

Social resilience refers to how individuals from the same urban settlement get along and the extent to which communities are able to react and adapt to “shocks” and “stresses”. Various factors can affect the social resilience of a city the varying approaches and political decisions taken in both local and national government establishing any implications these policies may have had. Glasgow and Pittsburgh are tackling deficiencies in social resilience through improving housing and encouraging greater citizen participation in society.

Social resilience is principally focused on social entities such individuals, organizations, or communities and measures their ability to absorb and cope with any “shocks” and “stresses” which it may have to confront. As O’Brist conveyed, social resilience poses the question: “Resilience to what? What is the threat or risk we examine?”. Shock and Stresses which effect social resilience tend to originate from out with social structure that is threatened, these shocks or stresses could include, rising house prices, a large influx of new population, or threat of displacement from social housing due to redevelopment. However, they might also occasionally originate from within the social network, such as disease outbreak. As established social instances as well as ecological circumstance can be considered as threats, and that social units are usually exposed to multiple stress factors (see also Leichenko & O’Brien 2008).

Current debate over social resilience has reached a point that numerous authors such as Voss (2008), Lorenz (2010), O’Brist et al. (2010a), have conveyed Social resilience has the same principle factors as the general resilience concept as pursued by the Rockefeller Foundation. Both social resilience and the general resilience concept are based around a series of

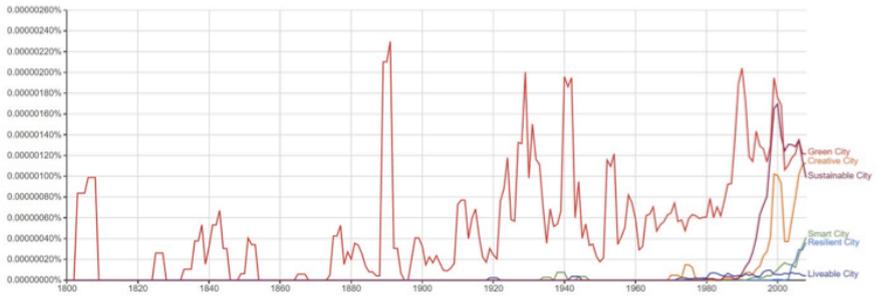
ideals, which promote adaptability, transformability or recovery in the face of adversity (Keck & Sakdapolrak, 2012). However, social resilience places particular attention on the understanding of vulnerable groups or residents under stress, and ensures they are elevated out of that position. This will allow them to become fully integrated into wider society. Therefore if all members of society are able to interact in this way the general resilience of the wider city or region will be enhanced.

LITERATURE REVIEW 4 - WHAT IS RESILIENCE THEORY?

Resilience is a cross-disciplinary theory, which has risen in relevance in recent times. The 'Resilient City' concept can be viewed as an epoch within urbanism; there are other narratives such as the Green City, the Sustainable City, the Creative City, the Liveable City, and the Smart City, all of which attempt to draw solutions for contemporary urban issues. Therefore in order to establish a context for resilience, a comparison has been drawn between all these narratives. Using Google's Ngram viewer, which tracks the usage of words and phrases in Google Books publications throughout time, a context becomes apparent.

What this quick method of comparison shows, is that the concept of a Green City has always been of relevance, whereas the remaining theories are relatively new. Additionally, we can see the importance of the 'Sustainable City' within the last 20 years, dwarfing all the remaining constructs. However, this graph arguably is quite deceiving because it over-simplifies a large amount of data. Another way of using this tool is to focus in on one topic at a time to find patterns. To understand the relevance of resilience in comparison to sustainability, I have pitted them against each other, and what's quite revealing is that resilience is on the rise while sustainability is on the demise.

"The rhetoric of resilience is ascendant and quickly supplanting the notion of sustainability as a framework for design, planning, and management of cities." Fleming reasons that resilience is replacing the notion of sustainability because it deals with volatile events and therefore is more pragmatic in the context of urban issues today than sustainability, which is interested solely in stability. A notable event which corroborates the resonance of this new theory is the conception of the "100 Resilient Cities" initiative by the Rockefeller Foundation whose aim is to help cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century."



While the occurrence of natural disasters continue to increase because of climate change, a political climate of uncertainty and instability is being created, notably with the election of a celebrity, Donald Trump, as the new President of the United States and with the UK referendum vote announcing the United Kingdom is to leave the European Union. While at first the volatility of nature and society seem disconnected, it can be argued that social resilience and ecological resilience are synergistic and co-evolutionary as more often than not social systems depend on ecological systems.

“The devastating civil war in Syria begun with climate change. In 2006, a five-year drought began, the worst in over a century, which was exacerbated by a corrupt water allocation system. Crops failed and more than 1.5 million desperate farmers and herders moved into Syria’s cities. Ignored and unable to move forward with their lives, they became frustrated by the repressive regime. Their protests sparked a civil war.” (Rose 2016)

Resilience is defined by the 100 Resilient Cities network as being made up of shocks and stresses. Shocks are abrupt like hurricanes, and stresses are long-term deteriorating the fabric of a city over time. I’m interested in the latter as although shocks bring a disturbance to a system, stresses can be much more insidious and usually come to surface when a shock is received. If people are excluded and left to simmer in frustration there is a danger of uncertainty, instability and even war.



Qualities of resilient systems:

Reflective
Robust
Redundant
Flexible
Resourceful
Inclusive
Integrated

CONCLUSIONS ON RESILIENCE

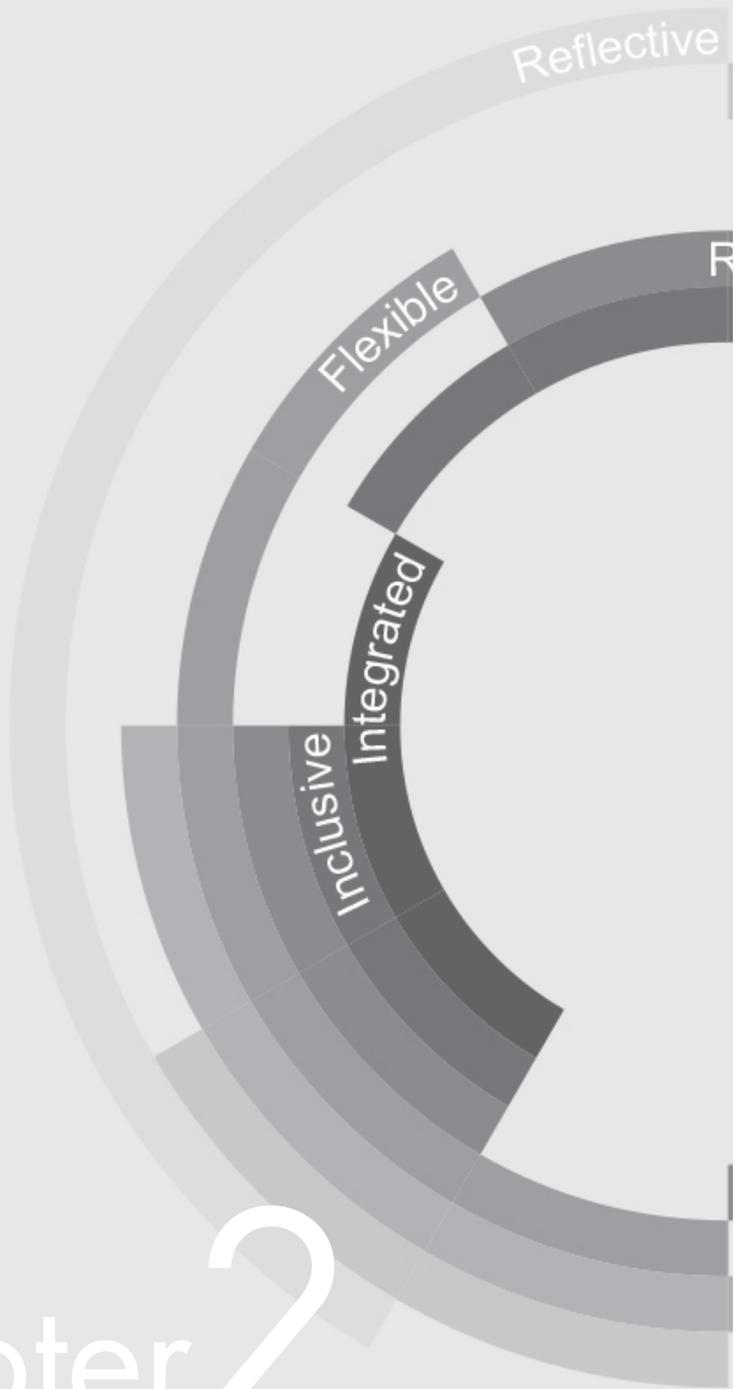
Following our research, we believe that 'resilience' is an all encompassing tool that can be used to apply meaningful architectural and planning interventions in the city.

From looking at The Rockefeller's Foundation's definition, we believe that 'resilience' is about the natural and man-made effects on a city, which categorises them into shocks and stresses. As 'resilience' seeks not to isolate certain shocks, stresses and risks into individual components but acknowledges that everything is interlinked, cities can start to spread their focus into all domains, in order to improve the functioning of the city. This planning theory seems to be the next logical step following from 'sustainability' and 'livability' concepts, as it is developing in the time, where there is becoming more frequent unprecedented shocks. Instead of looking at past methods of intervention, 'resilience' incorporates a level of adaptability and change, which allows for contingency.

Our research leads us to conclude that there are four types of shocks and stresses:

- Social
- Ecological
- Economic
- Political

This has allowed us to analyse how resilient Glasgow and Pittsburgh are, to lead onto individual analysis.



chapter 2

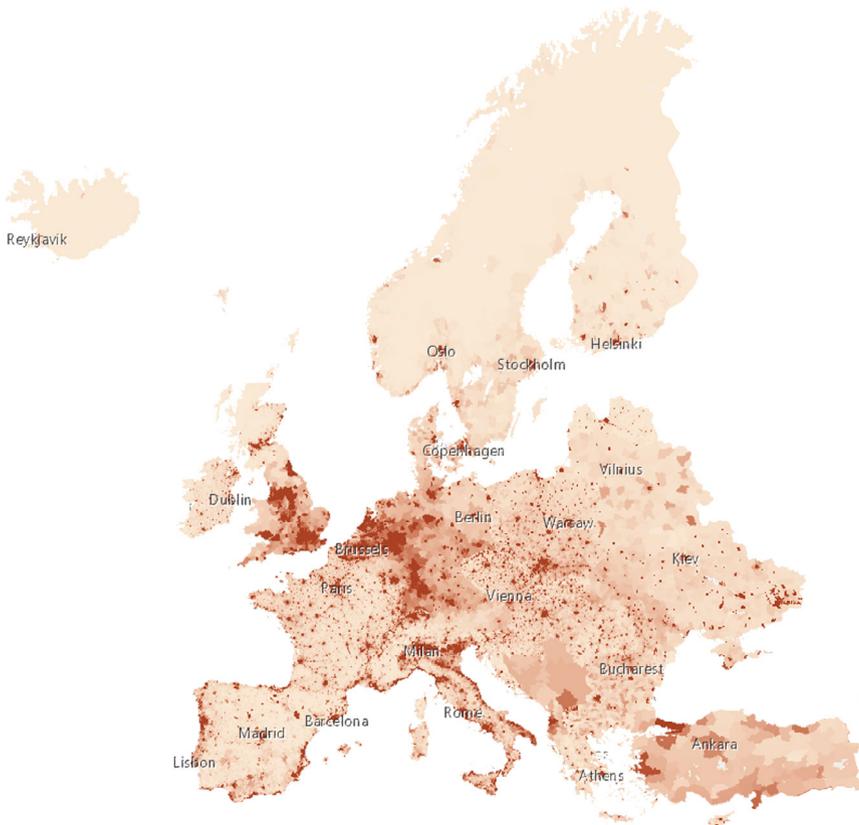


GLASGOW & PITTSBURGH

EUROPE'S POPULATION DENSITY

"Resilience priorities have been increasingly focused on cities because of the particular vulnerability of densely populated political, economic, and cultural centres, the interdependencies of networked infrastructures, and as a result of continued and rapid urbanisation." (Coaffee & Clarke 2015)

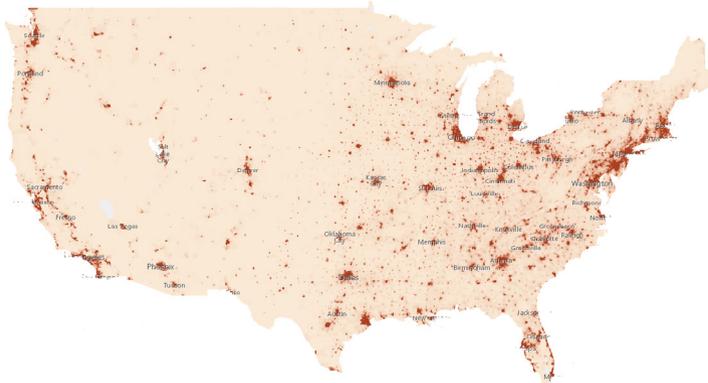
Cities are ultimately the most extensive and complex man-made systems; that lends them to becoming densely populated hubs of economy, culture, infrastructure and politics. This breeds distinct vulnerabilities which undermine cities' ability to adapt and grow. It is therefore applicable to implement resilience concepts.



USA'S POPULATION DENSITY

Comparing the population density of Europe to the USA, we can discern that the USA, particularly in the West can be particularly sparse. Pittsburgh, lying in the East is part of the collection of densely populated cities, joined by New York, Washington, Philadelphia, Detroit, Chicago, etc.

Europe is intensely more populated, particularly England and mainland Europe. Glasgow which lies slightly away from this, appears notably akin to Pittsburgh's population density. In fact Glasgow slightly exceeds Pittsburgh's population density, with 8,541.8/sq mi as opposed to 5,540/sq mi respectively.



THE CITY OF GLASGOW WITHIN GREATER GLASGOW

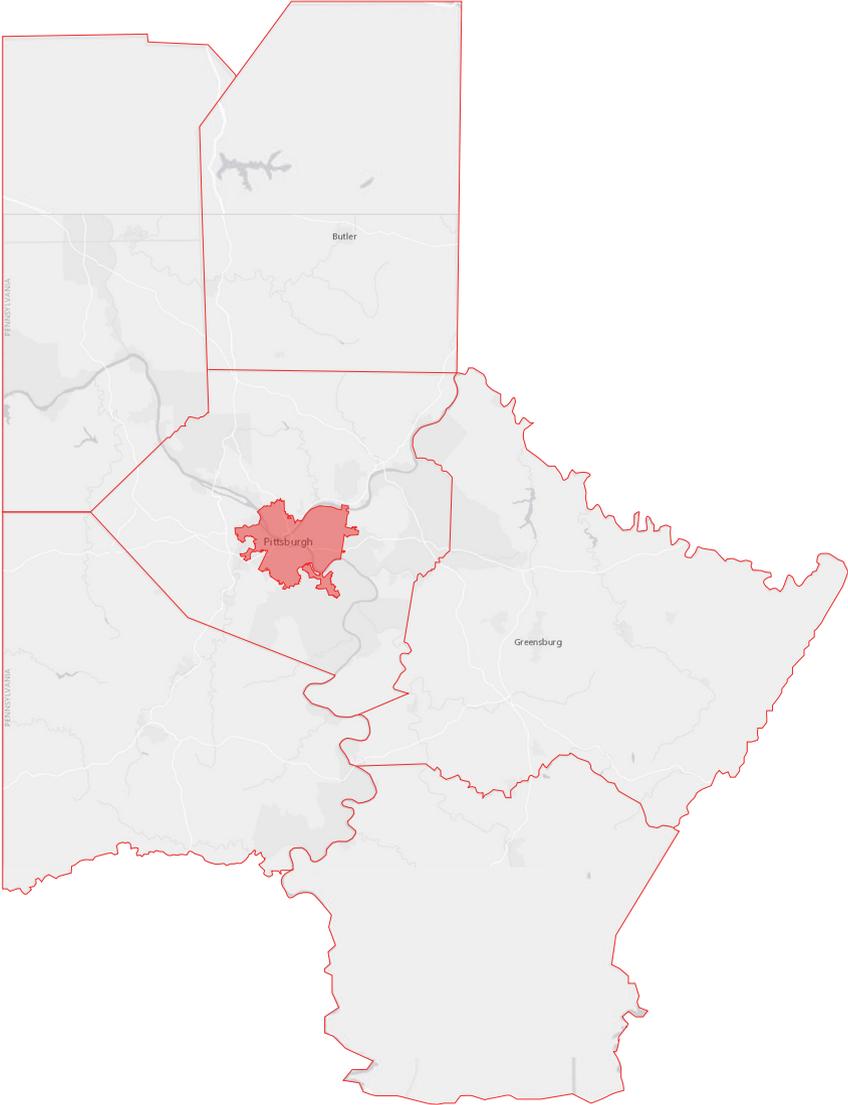
City of Glasgow Area: 174.8 km²



(highlighted in red)

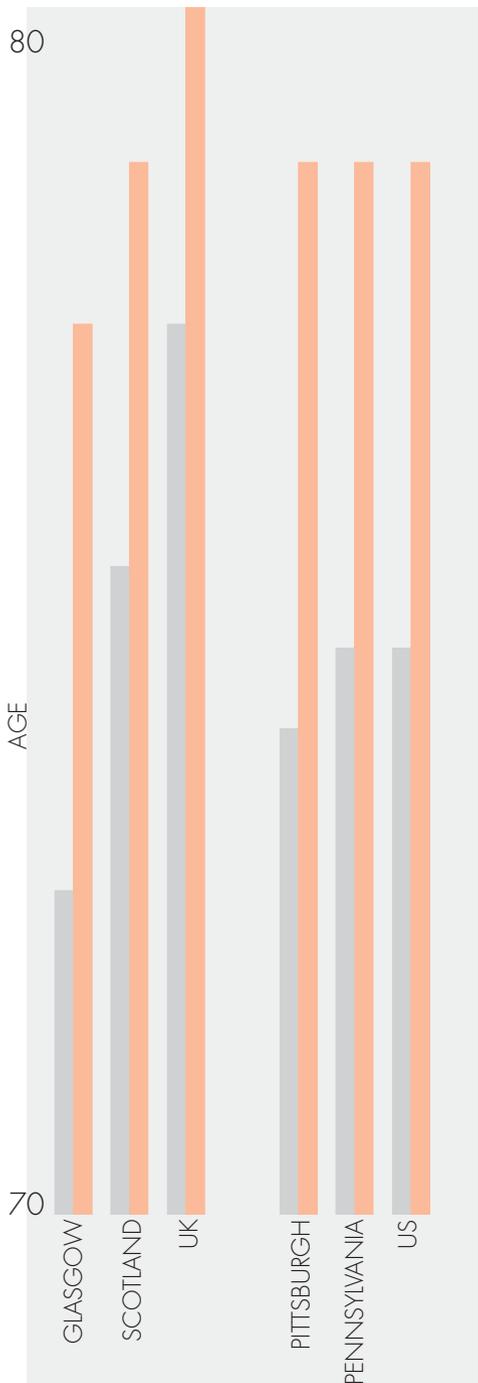
CITY OF PITTSBURGH WITHIN PITTSBURGH METROPOLITAN AREA

City of Pittsburgh Area: 151 km²



city analysis

(highlighted in red)



GLASGOW

LIFE EXPECTANCY

Glasgow
 Males 73.4
 Female 78.7

Scotland
 Male 77.2
 Female 81.1

UK (incl Scotland)
 Male 79.5
 Female 82.5

PITTSBURGH

LIFE EXPECTANCY

Pittsburgh (Allegheny County)
 Male 75.1
 Female 80.7

Pennsylvania
 Male 75.7
 Female 81.3

United States
 Male 76.2
 Female 81.3

DEMOGRAPHICS

GLASGOW

White: Scottish
78.59%

White: Other British
4.07%

White: Irish
1.89%

White: Gypsy/Traveller
0.07%

White: Polish
1.42%

White: Other
2.38%

White: Total
88.42%

Asian
16.11%

African: African, African Scottish or
African British
2.07%

African: Other African
0.02%

Caribbean
0.13%

Mixed or multiple ethnic groups:
0.49%

Other
0.64%

PITTSBURGH

White
66.0%

— Non-Hispanic
64.8%

Black or African American
26.1%

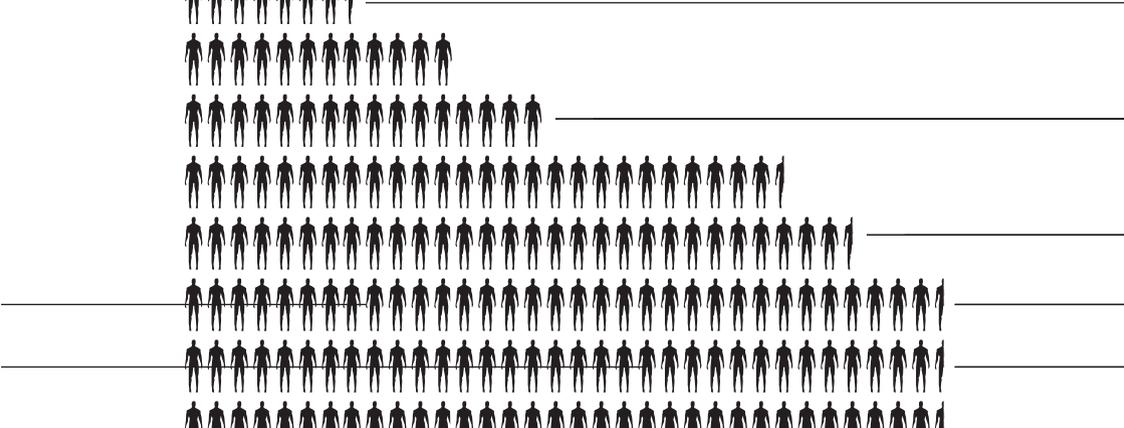
Hispanic or Latino (of any race)
2.3%

Asian
4.4%

Other
1.2%

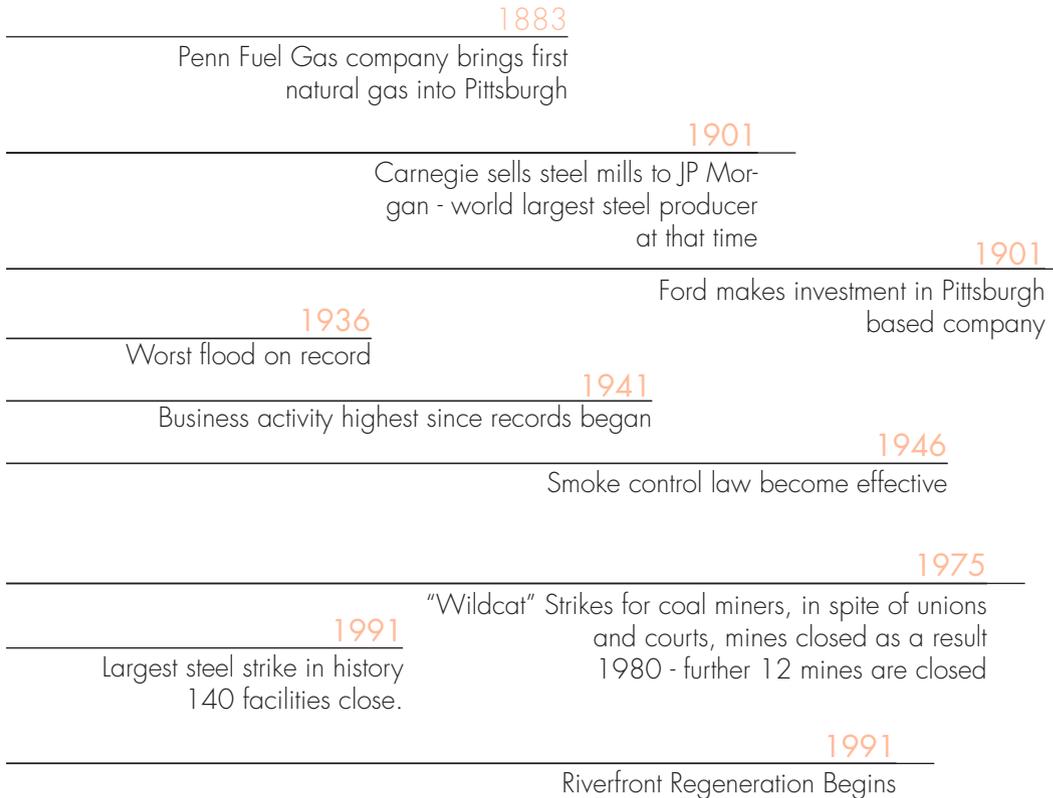


20,000



PITTSBURGH POPULATION TIMELINE

The city of Pittsburgh's population booms, coincide with natural gas and oil discoveries, which propelled the city into its industrial age. So much so was Pittsburgh a city of industry and production that during the First World War, the steel mills ran day and night to meet the demands of war. Again in 1942, during the Second World War the steel mills for the first time ran during Christmas day. This height of industry came with consequences for the environment. Within the period of 1930-1950, the population was at its largest (around 670,000), and the city was at its blackest, appearing to Pilots in 1937 "Like a ball of black ink".

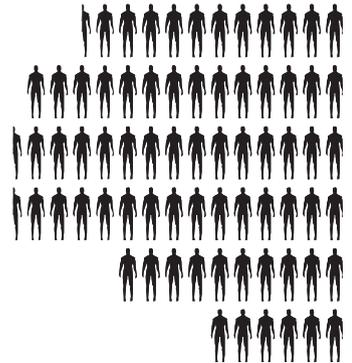


GLASGOW POPULATION TIMELINE

 20,000

1860s

Canalisation and extensive program of dock and wharf construction - waterfront is transformed into a modern port.

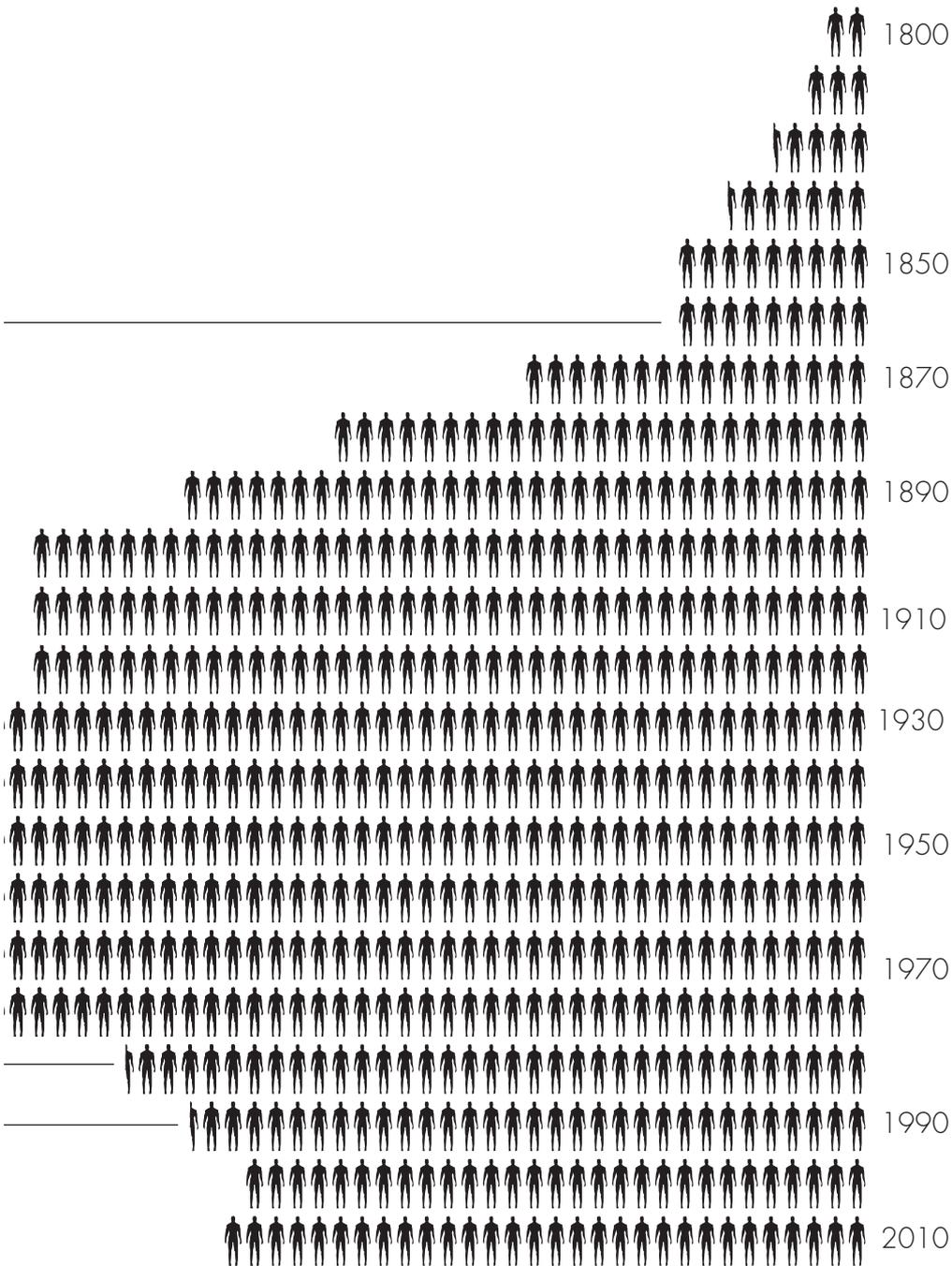


“place marketing” becomes central strategy to stimulate post-industrial development”

1983

1990

“European City of Culture”



city analysis

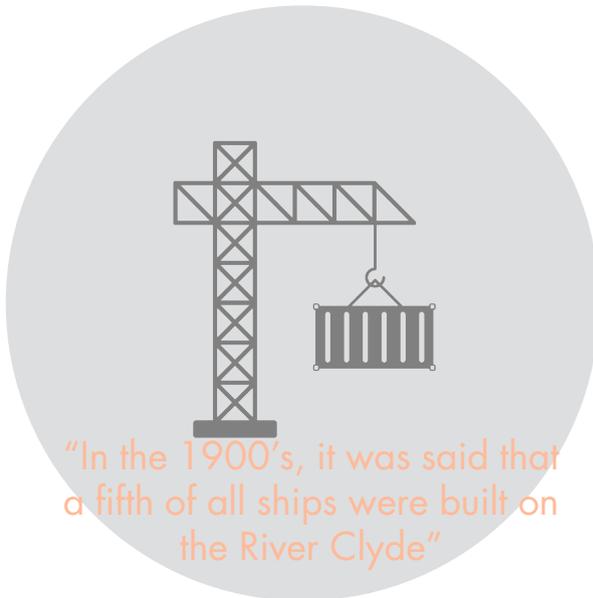
INDUSTRY

Glasgow and Pittsburgh have both shown their ability to adapt and reinvent themselves in times of economic hardship. Both cities faced the booming successes of the industrial revolution, the subsequent lows and the urban regeneration that followed. This section sets out their past industrial successes and how the image of both cities were reconstructed.

INDUSTRIAL GLASGOW (1812-1970)

(1812 -1970) HEAVY INDUSTRY

main industry type: engineering and ship- building employed **23%** of the total shipbuilding labour force by 1870 alone **30,000** ships were built on the River Clyde in total.



Industrialisation created jobs and economic wealth in Glasgow and Pittsburgh, however the environmental implications are still being remediated in both cities.

"Streams have been polluted with sewage and the waste from the mills. Life for the majority of the population has been rendered unspeakably pinched and dingy... This is what might be called the technological blight of heavy industry."

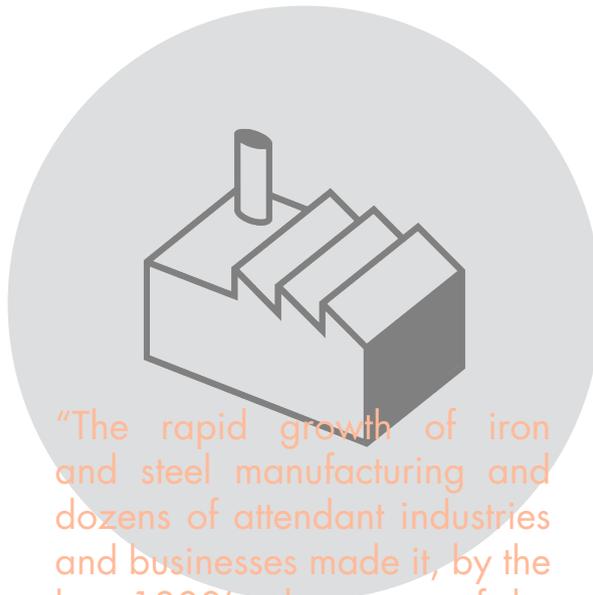
- a citizen of Pittsburgh, 1920.

INDUSTRIAL PITTSBURGH (1850-1980)

(1850 -1980) HEAVY INDUSTRY

main industry type: steel manufacturing - **12 jobs** for every \$1 million worth of steel produced

By 1900, Carnegie Steel was the country's largest steel company with 3 million tons of capacity



"The rapid growth of iron and steel manufacturing and dozens of attendant industries and businesses made it, by the late 1800's, the centre of the industrial world"

POST-INDUSTRIAL GLASGOW

(1970-2016) rebirth as a centre of arts and culture

main industry types: health, finance, retail, tourism

Most industry jobs are in health (61,500), business support (52,900), professional (38,400) education (30,100) and retail (32,000). (2009 study)

Glasgow's focus on cultural buildings such as The Burrell Collection (1982), the SECC (1988), the SSE Hydro and the Riverside Museum have been part of their marketing tourism strategy to project Glasgow as a city of arts and culture.

Awarded British city for Architecture and Design in 1999 and the host to many cultural events, most recently the Commonwealth Games in 2014, the city has used large scale public events to help achieve notoriety in this sector.



POST-INDUSTRIAL PITTSBURGH

(1970-2016) rebirth as a centre of finance, corporate administration, and science and technology

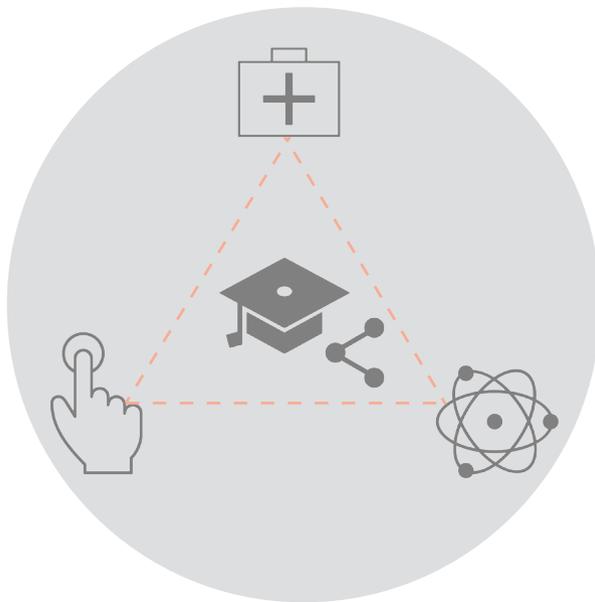
main industry types: healthcare, technology, bioscience

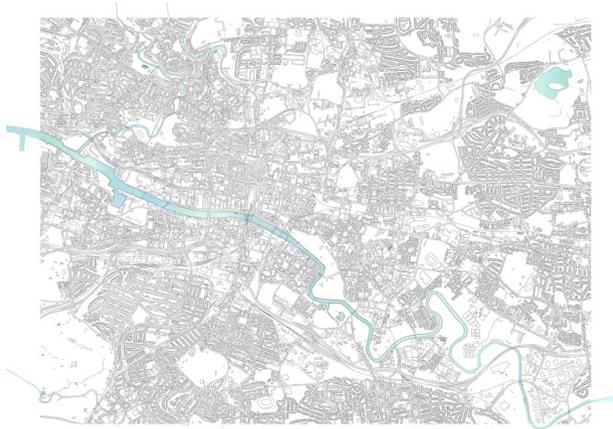
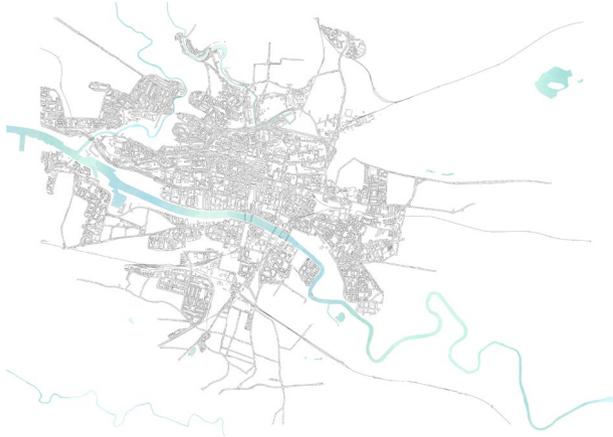
As of 2012, **one in five** private sector employees worked for a health services business. Largest employment sector is health, educational and social services.

12.3% work in the heavy manufacturing industry

Research is third largest industry with **150** laboratories and **7,500** scientists and engineers

Technology industries Google, Apple, Intel and emerging Internet companies Petrosoft, ModCloth and Guru have set up locations in Pittsburgh





URBAN DEVELOPMENT | GLASGOW

1782

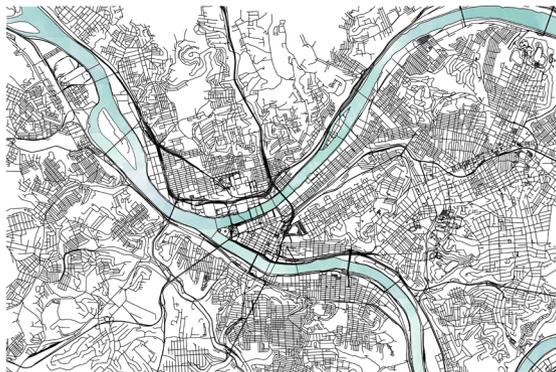
From the 18th century, Glasgow became prominent as a hub of international trade to and from the Americas. Based on the port near the Clyde River and High street connecting the river and Glasgow cathedral, the city had extended gradually.

1857

Since the opening of the Monkland Canal and Clyde Canal in 1795, the size of city had growth rapidly and it caused that Glasgow's population had surpassed that of Edinburgh by 1821. The city had spread out along those river and canals.

1990

After World War, the city had recovered and grew through the post-war boom. It has extended to 175.5km² and became the largest city in Scotland.



URBAN DEVELOPMENT | PITTSBURGH

1784

Following the American Revolution, Pittsburgh had grown. In 1784, Thomas Viceroy completed a town plan and Pittsburgh became a possession of Pennsylvania in 1785. The plan made the centre of the Pittsburgh between Monongahela and Allegheny Rivers.

1872

By 1797, the population grew up as glass manufacture began and Pittsburgh became one of largest cities west of the Allegheny Mountains producing significant quantities of iron, brass, tin, and glass.

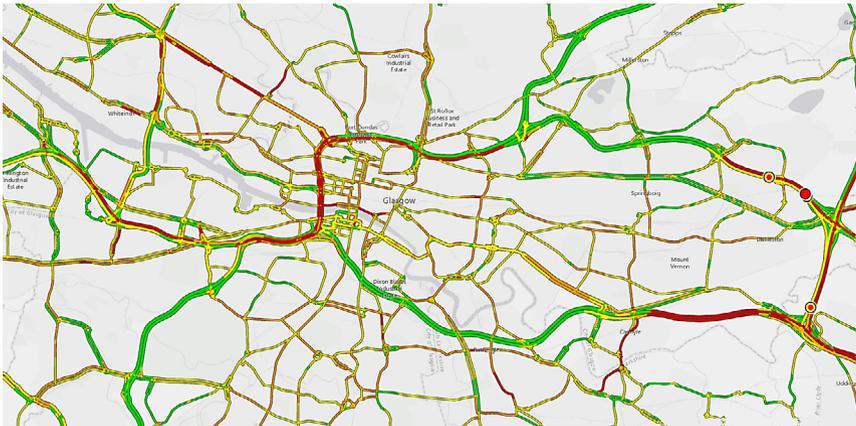
1990

The American Civil War boosted the city's economy with increased iron and armament demand. Because of this effect, Pittsburgh became the nation's 8th-largest city in 1910. In the later 20th century, the area shifted its economic base from industry to education, tourism and services.

INFRASTRUCTURE: GLASGOW'S TRAFFIC

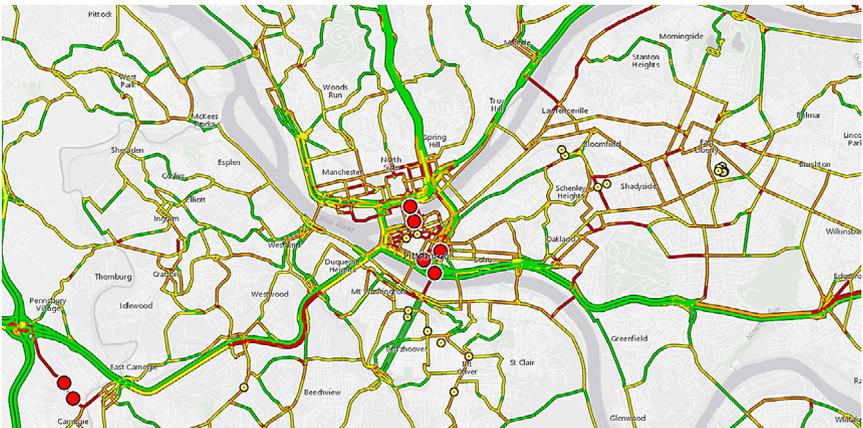
Glasgow has the lowest level of car ownership in Scotland, yet its planning history has concentrated on building more and more motorways. Looking at the visual of traffic, it's can be seen that central road and bridge infrastructure is not a critical issue. What can benefit the city's well-being is creating better public transport links between the centre and the Eastern outskirts of the city.

Key



INFRASTRUCTURE: PITTSBURGH'S TRAFFIC

A component to Pittsburgh's City Resilience Strategy is to improve 'aging infrastructure' and looking at this visual of traffic, it becomes clear why. As can be noted through a comparison with Glasgow, there is a lot more congestion at the centre of Pittsburgh and into Pittsburgh, with many critical traffic incidents along the way. Unlike Glasgow, which has a fair spread of universities, public buildings, offices and cultural buildings throughout the city's breadth, Pittsburgh is centralised in and around the downtown area which in itself has a tight historic grain. Therefore, developing the aging public transport system and making the city cycle-friendly will greatly benefit this vulnerability.



GLASGOW



PITTSBURGH



HOUSING

Historically, Glasgow and Pittsburgh housing stock has failed to support its population.

In Glasgow swathes of the city were overrun with Victorian slums with one and two roomed apartments lacking appropriate plumbing. However, the large-scale demolition and replacement of these slums with modern, high-rise housing estates often re-established many of the problems they were planned to eradicate. Entire territorial based communities with long historic links in various areas were completely destroyed. The decentralization of population was absorbed by other areas around the city, but also to newly established “new towns” around the periphery of Glasgow.

Pittsburgh implemented a renewal program to re-vitalize its ailing economy – this became known as the “Pittsburgh Renaissance”. However, its ambition plans to rejuvenate the city was faltering due to its inadequate housing infrastructure. As the late 1950’s approached, shortages and a deterioration of existing stock combined with relocation difficulties and population displacement could no longer be neglected. However, unlike

Housing for a resilient city should be able to support community and social resilience. The security of residents and threats of displacement should also be eased with communities encouraged to share governance, providing a sense ownership – the difference between a house and a home.

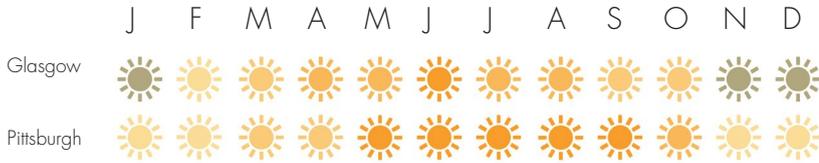
CLIMATE

Glasgow spends around half of the year with less than 12 hours sunlight. Dark short winter days and long bright summers days.

Glasgow summer – Average hours of sunlight in summer 17 hours & 28 minutes (June).

Comparable to Glasgow, has a Pittsburgh has a more prolonged summer. However, this often brings hot, humid conditions with intense periods of rainfall.

Hours of Sunshine | Average Total Monthly



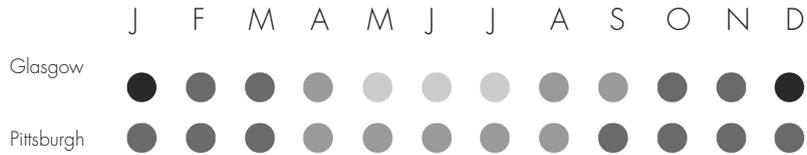
Unlike Glasgow, Pittsburgh has more distinct seasons. In Pittsburgh winter tends to be cold and cloudy with moderate snow fall, the autumn and spring tend to be drier, and generally more mild with moderate levels of sunlight. Despite summer generally proving to be more warm, this often brings hot, humid conditions with intense periods of rainfall.

Despite having a generally drier summer than Glasgow, Pittsburgh experiences short, intense periods of rainfall these have historically caused wide spread (almost annual) flooding throughout the Pittsburgh city district.

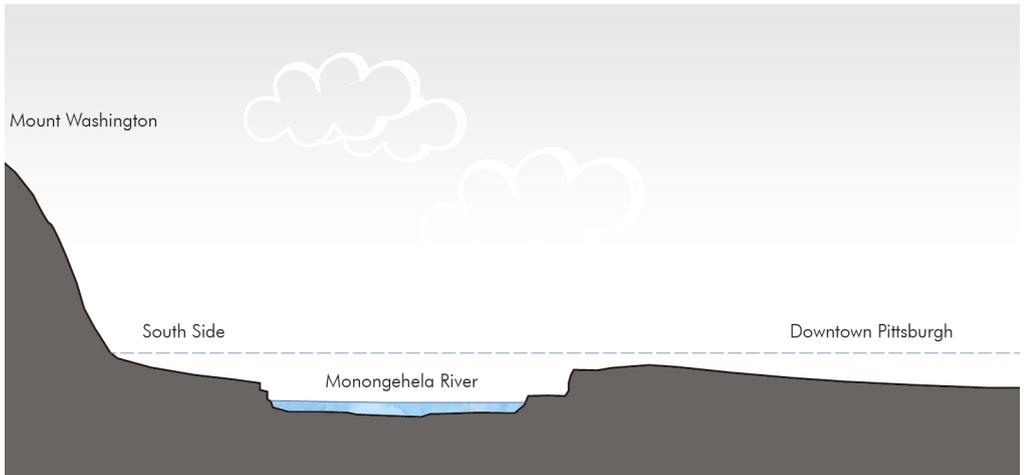
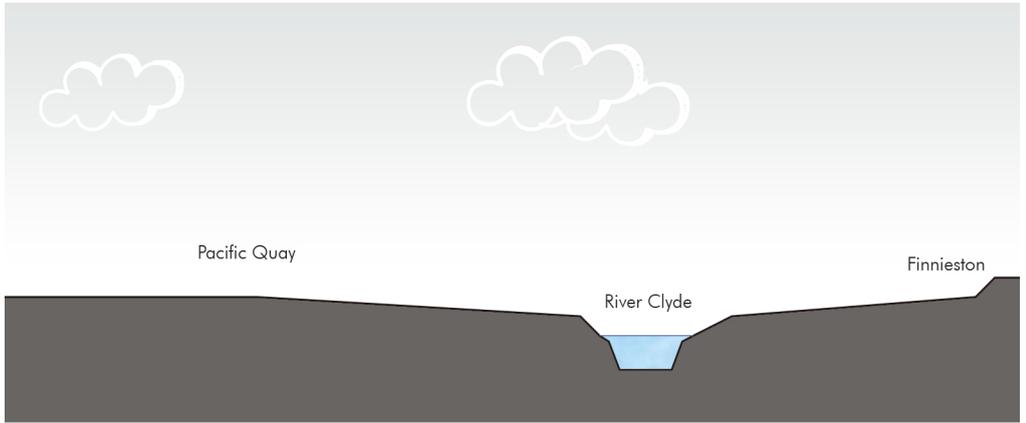
Average Rainfall

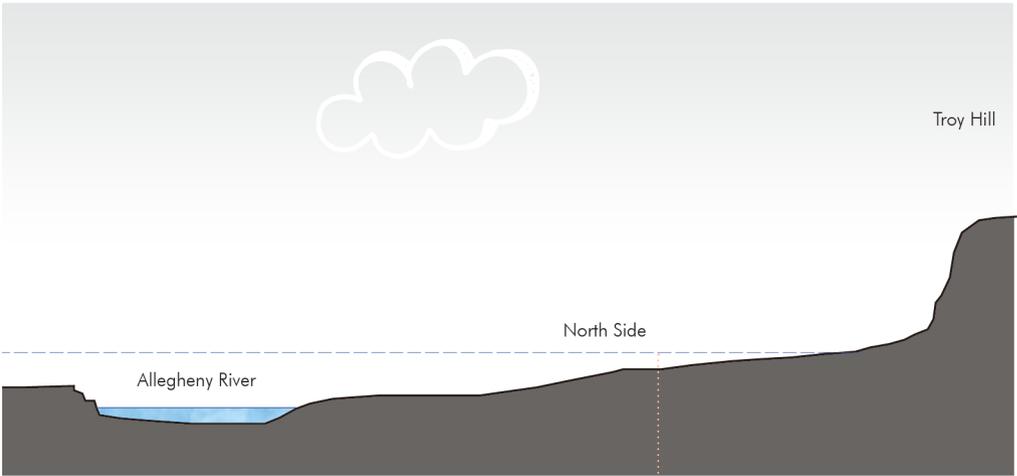
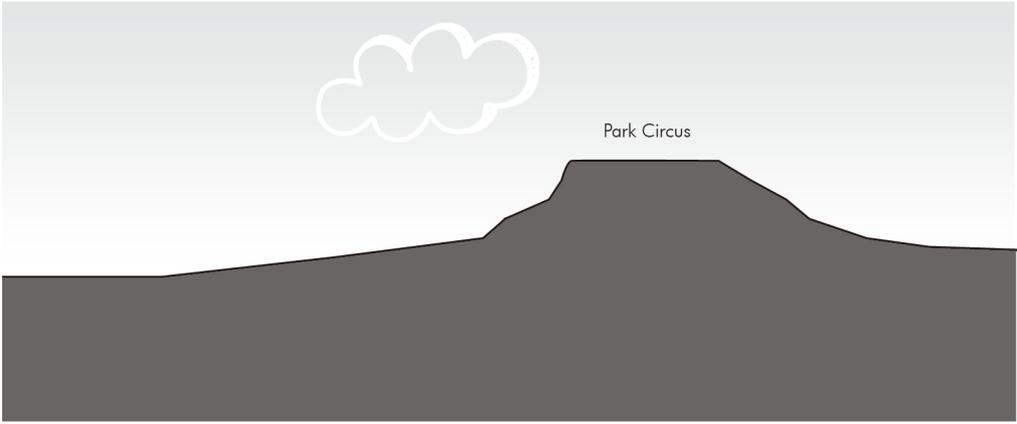


Hours of Daylight | Daily Average

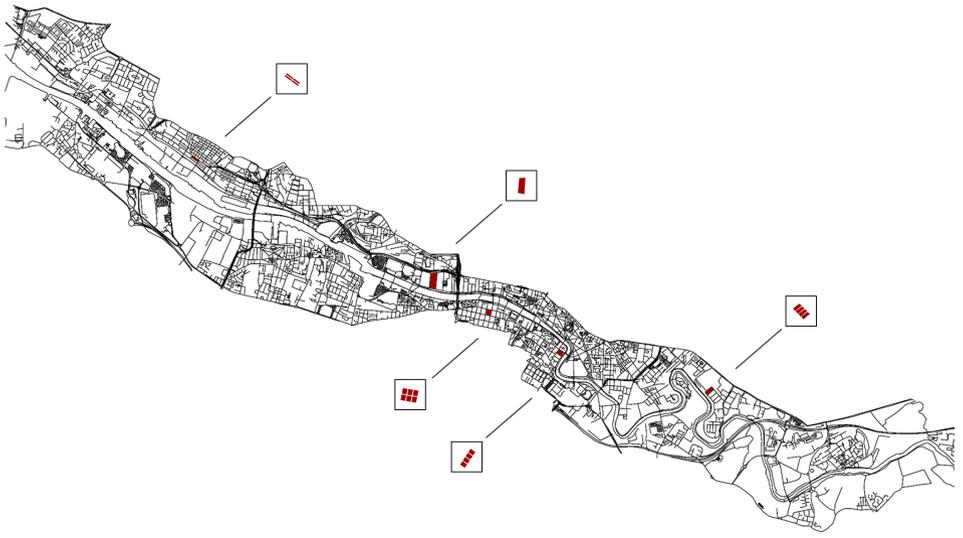


TOPOGRAPHY

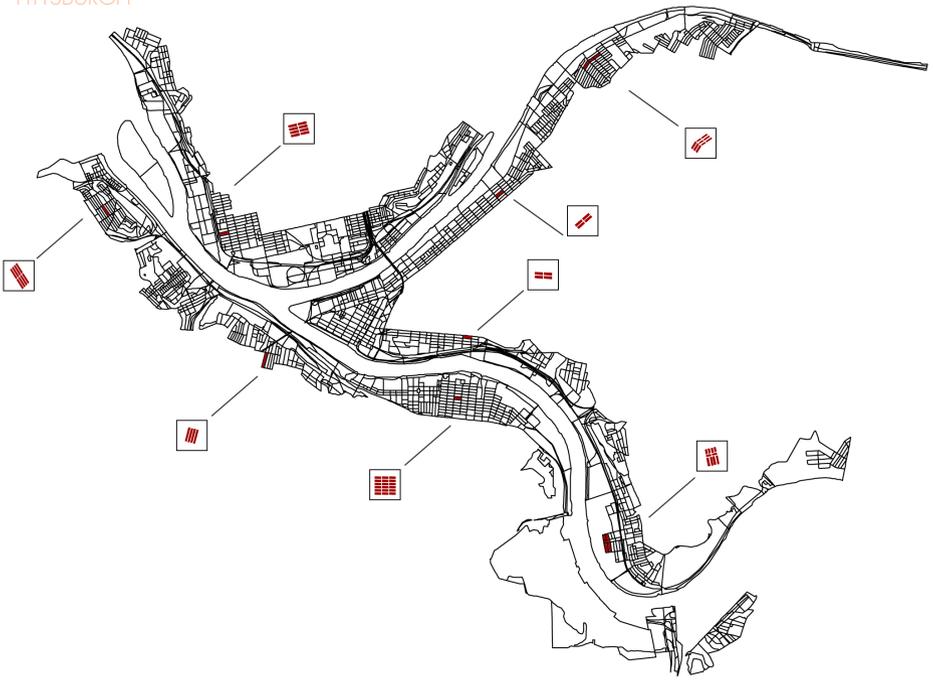




GLASGOW

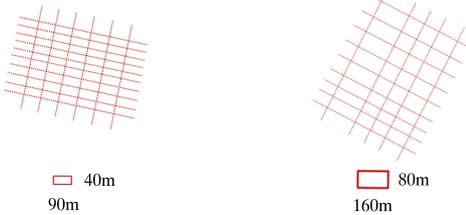


PITTSBURGH



GLASGOW

Around the Clyde River, the block size of the place where the docks and warehouses were is large and there is a buffer zone between the river and grid. The block shapes are usually vertical with the river. It means that the areas along the river is at and the roads make access easy to the river. Those shapes also have a decisive effect on the flow of water. Within a certain section, the more roads make the better water flow to the river.



In Glasgow, the average city block size is 90m by 40m and 3,600m².

In Pittsburgh, the average city block size is 160m by 80m and 12,800m² in the city centre.

PITTSBURGH

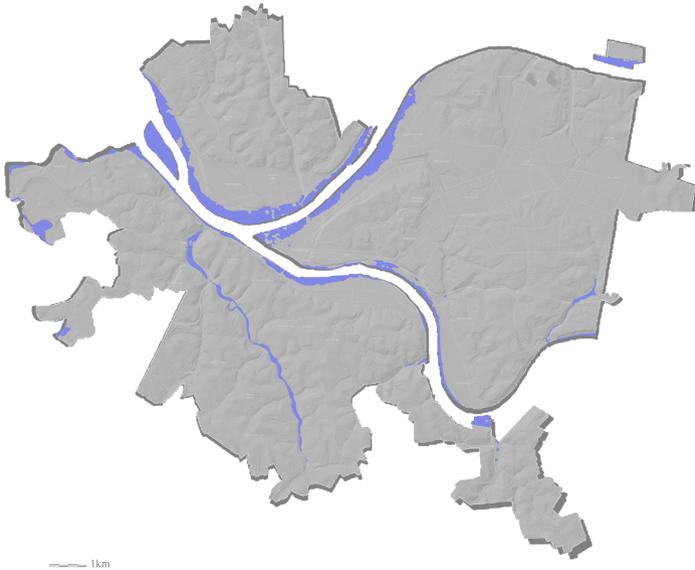
Pittsburgh is the city with planning first so the block shape looks more orderly with grid pattern. The block shapes along the river side in Pittsburgh are parallel with the river. The altitude near the river has changed sharply. These block shape generated by topography can be a part of the embankment when the river is overflooded by the heavy rainfall.

FLOODING + TOPOGRAPHY

PITTSBURGH

In Pittsburgh, flooding has occurred just near the side of the river because of the topography of the area. There are lots of flooded areas near the Allegheny river in comparison with the Monongahela river. At the southern part of the Monongahela River, lies Mt. Washington and Mt. Oliver.

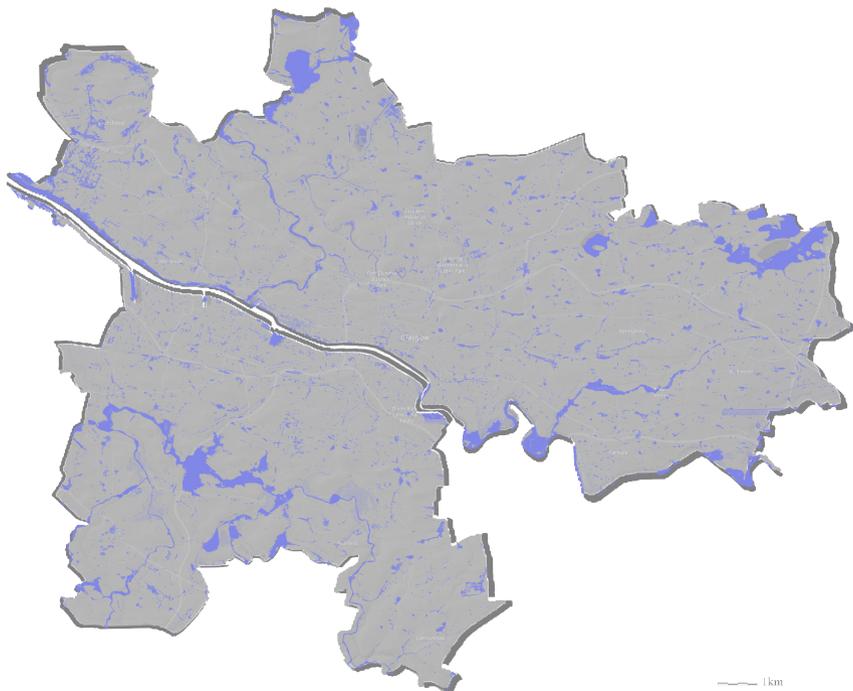
— 200m



GLASGOW

Due to flat ground and excessive surface water floods have not only occurred on the rivers edge but also occasionally in the city centre.

Topography and rain causes flooding. Glasgow is the city near the Atlantic and river Clyde is connecting the city centre and the sea. The gap between maximum altitude and minimum altitude is only 78m in the section. In other words, the level of Glasgow is flat. A steep slope couldn't be seen in the topography. It can cause floods not only near the river, but also near the surface water.

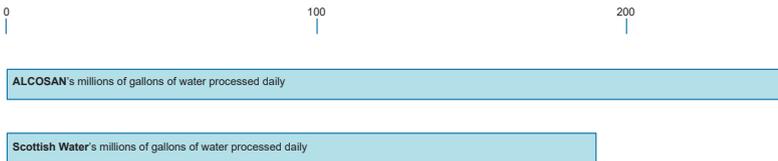


WATER SUPPLY

The hydrological cycle dictates that as water moves through the environment towards the ocean, it is being evaporated or absorbed at each stage. This ensures the continuity of a cyclical system which produces both 'pure water' through our rivers and natural drainage for our environment. However, with cities such as Glasgow and Pittsburgh, industrialisation and thus the consequential rapid urbanisation which occurred, disturbed the natural cycle. Water drainage has significantly changed because an increased population uses an increased amount of water, and urbanisation leads to hard surfacing of what would have been water-absorbing vegetation and forests. In Glasgow; "the spread of urbanisation since the industrial revolution has left the East End watercourses in a far from natural state : rainfall that used to run into streams now falls on hard, impermeable surfaces"¹. This change in the way that water moves and the rate it is absorbed into the hydrological cycle shapes the conditions for flash flooding among other environmental degradations. The diagram taken from Michael Hough's publication 'City Form and Natural Process', compares the pre-urban condition of drainage with the urban treatment of drainage. It highlights the increase in surface run-off from 10% to 43% as a product of urbanisation, with evapotranspiration happening half as much, and so the need for sewers in urban cities.

In 1912 a superintendent at Pittsburgh Beaurau of Construction wrote, "rivers are the natural and logical drains and are formed for the purpose of carrying the wastes to the sea."² This epitomises Pittsburgh's late 19th century attitude to drainage and their three rivers, which like other urbanising cities were becoming increasingly polluted and disease-ridden. Today, the rivers of both Glasgow and Pittsburgh are still the places where water re-enters the cycle after human use, however the difference being that it is treated. Both Glasgow and Pittsburgh adopt a combined sewer system which transports household wastewater and rainwater (surface run-off) together to a treatment plant to be turned into 'pure water' before it is released back into the rivers and the ocean. With consumptions such as 75 gallons of water per day with bathroom use alone³, the urban drainage system in both cities are strained. With the increased use of water there is consequently an increased amount to be treated. The natural purifying system (pre-urbanisation) has been replaced with an engineered solution, which requires an immense amount of energy to run and by-products to dispose of.

Pittsburgh and Glasgow appear to differ in their treatment of the largest by-product of engineered water purification, sludge. ALCOSAN, Pittsburgh Metropolitan's service provider, claims to incinerate 32% of the sludge for heating and to generate electricity for plant use⁴, and the remainder is used to produce ALCOSOIL a nutrient-rich fertiliser for crops.⁵ In contrast Scottish water, Scotland's service provider, appear to only in the minority use sludge as a resource. They appear to have a problem with sludge disposal as they are being forced to 'store' it at the sewage treatment facilities, "30 sites where we store sludge produced at water or waste water treatment works"⁶, insinuating there is no resource-efficient system such as that in Pittsburgh. The problem therefore is two-fold both Glasgow and Pittsburgh have an over-reliance on grey infrastructure as opposed to green infrastructure when it comes to water drainage, and subsequently has to negate not only the by-product, but immense energy used and pollution generated.



THE RIVERS OF GLASGOW AND PITTSBURGH

The River Clyde has played an essential role in the history of Glasgow. In 1638, Glasgow industry began to produce linens, soap, and earthenware. The tobacco and sugar trade and ironworks became the main industry between the period of 1707 and 1800 and the industry expanded rapidly. The developed international trade required deeper rivers and canals so that huge vessels could dock in Glasgow. The river was deepened and this enabled the huge expansion of Clydeside's international trade, the rapid increase in shipbuilding and the significant development of the The Steam Engine throughout the 19th and early 20th centuries. It brought prosperity to Glasgow and opened up massive opportunities for Glasgow to expand its heavy industry. This situation, however, led to Glasgow to become a target during the First and Second World Wars and many of these industrial facilities were damaged. Consequently, the shipping industry



Glasgow, 1880.

went into decline after World War Two. Recently, however, new industries such as financial services, digital media and tourism are settling down via regeneration of the Clyde riverside plans.

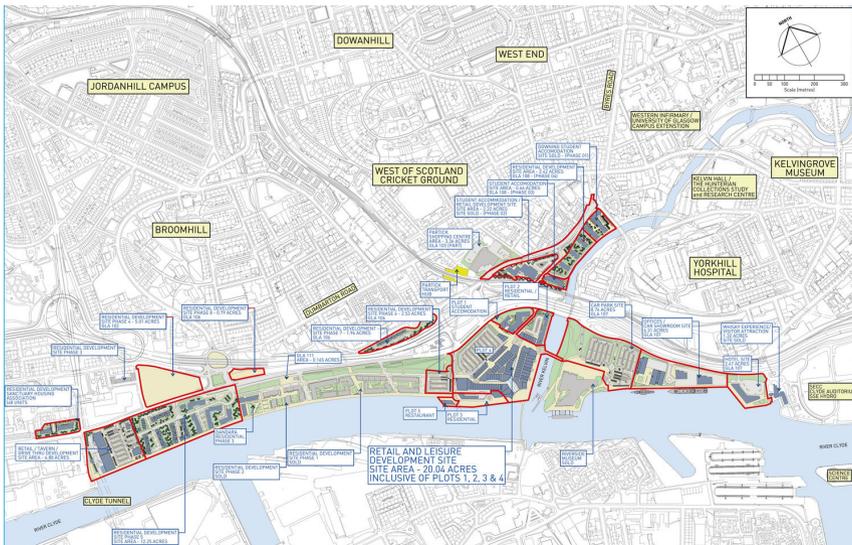
Pittsburgh has three rivers: The Allegheny, Monongahela and Ohio. Historically, the French settled down around the River Allegheny and Monongahela to focus on battles and strategies for the domination of the new world. In other words, that area was a hub point to conquer the west side since the rivers provided easy transportation and served as trade routes. Therefore, the French and British battled during the mid of 1700s and the British finally established Fort Pitt. To speed up the flow of traffic of vessels, river locks and dams were designed during 17th century. As a result, Pittsburgh became one of the earliest and first industrial cities with a shipbuilding industry as the River Ohio flowing west led it to be a gateway of the west. Additionally, bounteous natural resources supported Pittsburgh to become a manufacturing powerhouse. According to Lubove (1996), a social historian at University of Pittsburgh, the reasons related to the ultimate decline



Pittsburgh, 1880.

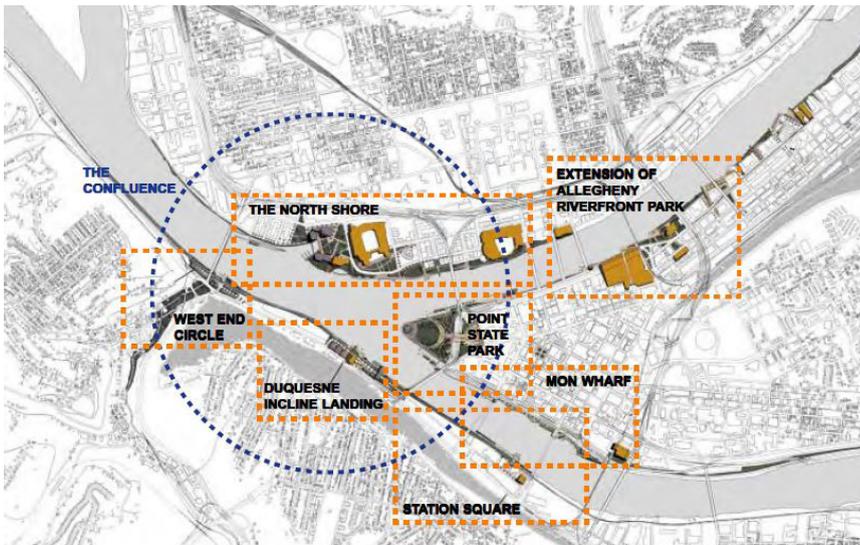
and demise of the steel industry in Pittsburgh were international competition, market changes, miscalculations by management and labor, and the failure of adaptation to newer technologies by steel companies.¹ Over that period, various attempts have been made to regenerate and reconstruct economy and social networks including the development projects of riversides such as River Renaissance.

Both Cities have great rivers and canals which made them urbanized. The River Clyde was originally a work space with docks to build ships and to anchor them. After the post-industrial period, they have both been situated on formerly vacant lands in older industrial cities. To redevelop the riverside of the Clyde, the Glasgow Harbour project began in 1999 in collaboration with The Glasgow City Council. Glasgow City Council had plans and visions of a waterfront to make it as a prosperous mix of functions which is well-linked to the rest of the city. The planning was granted for the original masterplan and the infrastructure was installed in 2001. Residential areas, green space, retails and leisure facilities were planned along the riverside.

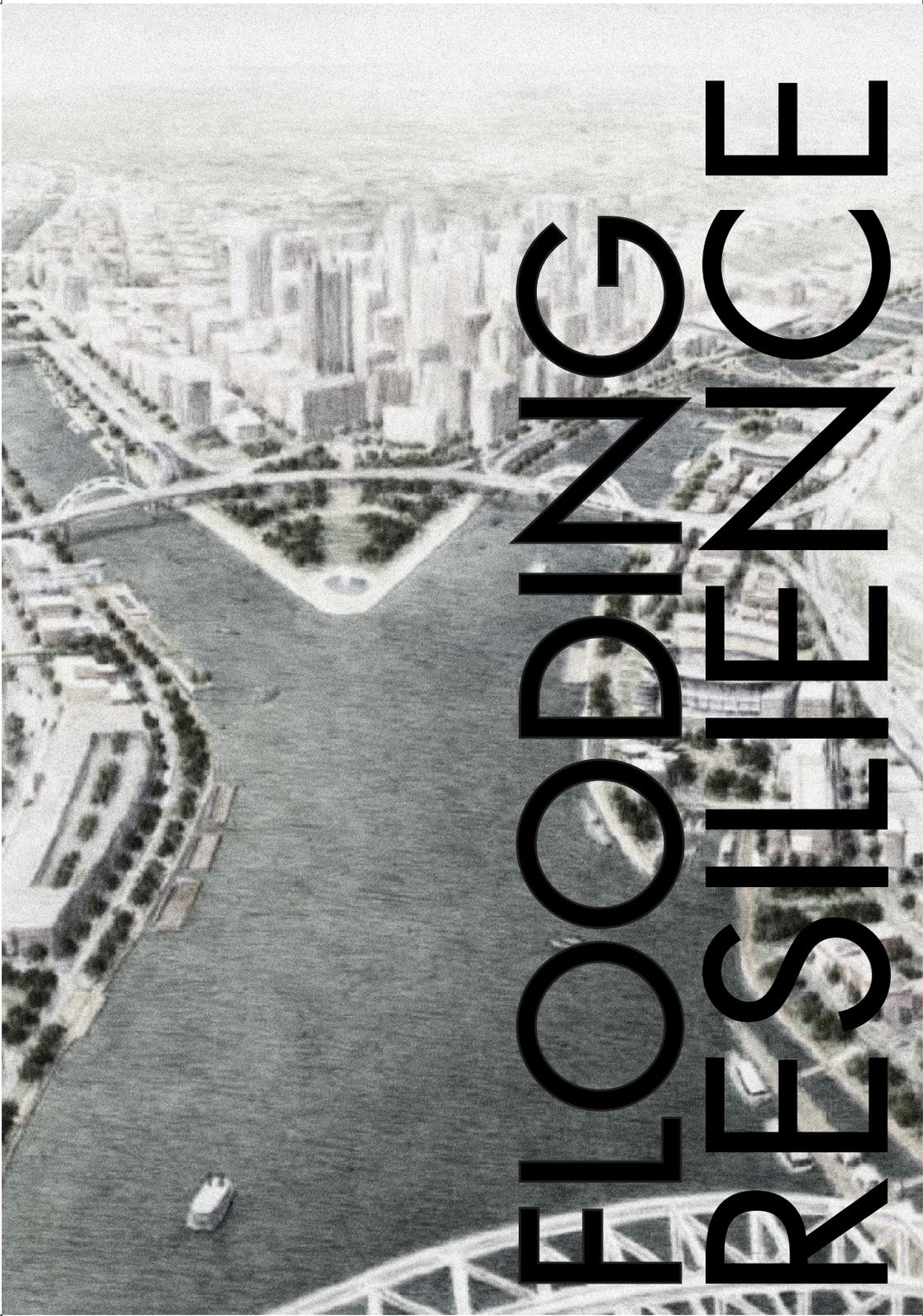


¹ Lubove, Roy. The post-steel era. Pittsburgh: Univ. of Pittsburgh Press, 1996.

In 1999, the nonprofit organization 'Riverlife' formed to regenerate the riverfronts and Pittsburgh's downtown. They presented a proposal of a vision plan for Pittsburgh's riverfronts in 2001 to restore and promote the riverfronts as an environmental, recreational, cultural and economic hub. The main theme of this project was Three Rivers Park bringing people back to the water in order to help the entire region reinvent its relationship with the rivers (Riverlife 2001).



chapter 3



FLOODING RESILIENCE

COMPARATIVE ANALYSIS BETWEEN GLASGOW AND PITTSBURGH

In recent years, the perception of culture and arts has changed from the common people's enjoyment to an important variable for economic development. Particularly, culture and arts have been used to turn economically, socially, and environmentally declined cities into new image possessed cities such as a cultural city. In many old industrial cities in developed countries, the use of culture and arts has become an increasingly significant component of economic and physical regeneration strategies. This is especially apparent in many cities in Europe and the United States have adopted culture and arts as a way of escaping from urban decline. Typical examples of cities using culture and arts as a means of regenerating urban decline are a Scotland cities, Glasgow and Pittsburgh in Pennsylvania.

Glasgow is the largest city in Scotland, and the third largest in the United Kingdom. The area measures 175.5km² with a population of 606,340 people. Glasgow grew from a small rural settlement on the River Clyde to become the largest seaport in Britain. With the onset of the Industrial Revolution, the population and economy of Glasgow and the surrounding region expanded rapidly to become one of the world's pre-eminent centres of chemicals, textiles and engineering. Even Pittsburgh is the 63rd largest city in the United States, the metropolitan population is the largest in both the Ohio Valley and Appalachia. Pittsburgh had not developed until the American Revolution when it started being used as hunting grounds by right of conquest after defeating other tribes. In 1784, Thomas Viceroy completed a town plan which was approved by the Penn family attorney. The rations and cuts in supplies of British goods during the War in 1812 stimulated the American Industry and this led to Pittsburgh producing significant quantities of iron, brass, tin, and glass by 1815 and the American Civil War boosted the city's economy with the increase in demand of iron and armament.

Both cities have developed as industrial cities and suffered both economic crisis and decline by the post-industrial process. The raw material manufacture industry could hold out development of cities no longer. As part 1 shows at page 60, the main industry type of Glasgow was engineering and ship-building and it was thereafter changed to health, finance, retail, tourism. Glasgow also focused on cultural buildings and has used large scale public events to become a cultural city. The city was faced with a substantial economic and social decline in the 1960s and 70s.

However, Glasgow has used culture and arts to change the overall image of the city to a cultural city which led to a sustained urban development.¹¹ The main industry type of Pittsburgh was steel manufacturing, similar to Glasgow. After the 1970s, Pittsburgh, depending on the single industry as steel factory, was facing a serious economic crunch through weakness of steel industry competitiveness.¹² The rate of employee by steel industry has declined from approximately 20% in 1960 to under 4% by 2000. Recovery of steel industrial competitiveness was impossible.¹³ In the later 20th century, Pittsburgh shifted its economic base to education, tourism, and services, largely based on healthcare, medicine, finance, and high technology such as robotics.

¹¹ Judd, Dennis R., and Michael Parkinson. *Leadership and urban regeneration: cities in North America and Europe*. Newbury Park: Sage Publications, 1990

¹² Detrick, S. "The post industrial revitalization of Pittsburgh: myths and evidence." *Community Development Journal* 34, no. 1 (1999)

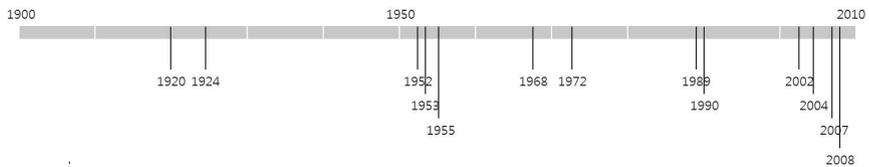
¹³ Beeson, Patricia, and Frank Giarratani. "Spatial Aspects of Capacity Change by U.S. Integrated Steel Producers." *Journal of Regional Science* 38, no. 3 (1998)

Date	Event
31.05.1911	Derby Day thunderstorm
10.04.1912	Weather on the departure day of RMS Titanic
29.05.1920	Severe floods at Louth
18.08.1924	Cannington floods
06.06.1944	D-Day
15.08.1952	Lynmouth floods
31.01.1953	East Coast floods
02.06.0953	Coronation Day of Queen Elizabeth II
26.06.1953	Eskdalemuir floods
18.07.1955	Record 24-hour Rainfall
27.01.1961	Severe gales across Scotland
15.01.1968	Great Glasgow storm
10.07.1968	Chew Stoke floods
15.09.1968	Southeast England floods
18.07.1972	Heavy rain across east Devon
02.06.1975	Snow in June 2 June 1975
14.08.1975	Hampstead storm
14.08.1979	Fastnet storm
10.01.1982	Lowest UK temperature
16.10.1987	October '87 Storm
13.02.1989	Record wind speed
19.05.1989	Halifax floods
24.05.1989	Thunderstorms across southern England
25.01.1990	Burns Day Storm
26.02.1990	Towyn floods
10.01.1993	The Braer Storm
01.01.2000	New Year's Day 2000
10.08.2003	Highest UK temperature
16.08.2004	Boscastle floods
28.07.2005	Birmingham tornado
20.07.2007	Heavy rain and floods across parts of central England
31.01.2008	Severe gales across the United Kingdom
14.05.2008	Heavy rain across Devon and Cornwall
29.05.2008	Flooding across Somerset, Dorset and Wiltshire
03.06.2008	Flooding in the Thames Valley
29.04.2011	Royal Wedding
23.05.2011	Severe gales across Scotland and Northern Ireland

1

Historical Weather Events

The rivers in the respective cities have been an important part to vitalize industries and develop cities. The River Clyde located in the centre of Glasgow is the eighth-longest river in the United Kingdom, and the second-longest in Scotland. The Clyde is formed by the confluence of two streams, the Daer Water and the Potrail Water. The average altitude of the city is 39m which is lower than the average of Scotland (109m). The city does not meet the ocean directly but is just 20km of distance away from the Firth of Clyde. Due to this hydrogeomorphological location, it needs a flexible plan in relation to flooding. Pittsburgh is the contact point of Monongahela River and Allegheny River and they coalesce into Ohio River. Because of these rivers, even though Pittsburgh lies more than 200 kilometers inland from the Atlantic, it has abundant water resources. While Glasgow has many streams such as River Cart, River Clyde and River Kelvin, Pittsburgh only has Saw Mill Run. These water resources, however, can be not only the source for development, but also a threat with heavy rain.



2 Flood Timeline

As it is shown in the chart of part 1 page 32 and 34, The most frequent acute shocks faced in American cities are heat wave, rainfall, flooding, and infrastructure failure. In the case of Europe, rainfall flooding shows a striking difference with others. In other words, flooding is the main issue for resilience challenges because of damage, frequency and climate change. According to the government of United Kingdom, measurements show that the average temperature at the Earth's surface has risen by about 0.8°C over the last century. The United Kingdom is also affected by rising temperatures. The

average temperature in Britain is now 1°C higher than it was 100 years ago and 0.5°C higher than it was in the 1970s.¹⁴ One of the main effects of this climate change is heavy rainfall. Among the historical weather events, over 40% is about floods in the United Kingdom and the frequency of flood is increasing.

The cities with rivers always have risks of flood. In order to tamp down some of the risks, dams and embankment were built and drainage facilities were constructed for water flows when the cities were planned. Flood, however, has done unexpected and incalculable damage to the cities since the abnormal climate such as heavy rainfall and storms occurs frequently, caused by global. As the table shows above, most damages by weather events are from floods. These natural disasters in particular are less predictable thus, harder to prevent unlike chronic stresses which are more predictable, therefore many experts argue that fast restoration is the best way to approach this issue. The purpose of this essay is to compare policies of Glasgow and Pittsburgh that would be used for resilience. Based on this, the adapted policies of Glasgow and Pittsburgh will be examined and analysed together and the resilience from the flooding of both cities will be compared. The level of standard to be used to evaluate resilience is referred to the preceding research and the adaptation policies of floods that are referred by policy data report and literature materials. In this essay, I will refer to G. Windle's standard which was used for the evaluation of interventions and policies designed promote resilience.¹⁵

¹⁴ Climate change explained." Climate change explained - GOV.UK. Accessed February 10, 2017.

¹⁵ Windle, Gill, Kate M. Bennett, and Jane Noyes. "A methodological review of resilience measurement scales." *Health and Quality of Life Outcomes* 9, no. 1 (2011)

THE CONTEMPORARY ISSUE OF FLOODING

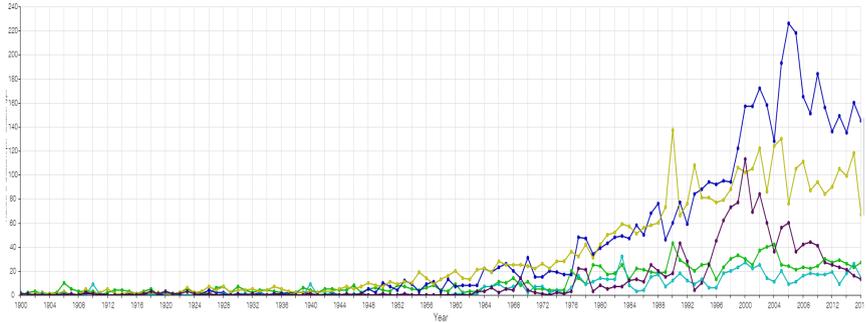
Strength and frequency of natural disasters around the world have in general increased as a result of climate change and global warming. At the same time, hydrological events are the most frequent occurring disaster and the severity of damage in areas already subject to heavy rains is also increasing. The 2016 floods in India which caused more than one thousand casualties and the severe 2014 floods in southeast Europe were major crises for environmental organizations. As technology advances the economic effect of disaster has become more severe in comparison to the loss of life. By S. Suriya and B. V. Mudgal, it has been suggested that rapid urbanization and a centralization of capital are the reasons behind this phenomenon.¹⁶

Because of these urban problems and global warming, issues of durability and resilience of cities are drawing people's attention. Many countries have come up with effective counterplans to prevent floods. There is, however, a major dilemma between adaptation and mitigation. The governments and organizations have focused on the reduction of green-house gases to prevent further climate change. This focus drew attention away from research into the adaptation, even though the adaptation policy based on resilience is prompt way to diminish damage caused by natural disasters.

¹⁶ Suriya, S., and B.v. Mudgal. "Impact of urbanization on flooding: The Thirusoolam sub watershed – A case study." *Journal of Hydrology* 412-413 (2012)

Disaster Subgroup	Disaster Main Type	Definition
Geophysical	Earthquake	A hazard originating from solid earth. This term is used interchangeably with the term geological hazard.
	Tectonic Movement	
	Volcanic activity	
Meteorological	Extreme Temperature	A hazard caused by short-lived, micro- to meso-scale extreme weather and atmospheric conditions that last from minutes to days.
	Fog	
	Storm	
Hydrological	Flood	A hazard caused by the occurrence, movement, and distribution of surface and subsurface freshwater and saltwater.
	Landslide	
	Wave action	
Climatological	Drought	A hazard caused by long-lived, meso- to macro-scale atmospheric processes ranging from intra-seasonal to multi-decadal climate variability.
	Glacial Melting	
	Wildfire	
Biological	Epidemic	A hazard caused by the exposure to living organisms and their toxic substances (e.g. venom, mold) or vector-borne diseases that they may carry. Examples are venomous wildlife and insects, poisonous plants, and mosquitoes carrying disease-causing agents such as parasites, bacteria, or viruses (e.g. malaria).
	Insect infestation	
	Agricultural disease outbreak	
Extraterrestrial	Impact	A hazard caused by asteroids, meteoroids, and comets as they pass near-earth, enter the Earth's atmosphere, and/or strike the Earth, and by changes in interplanetary conditions that effect the Earth's magnetosphere, ionosphere, and thermosphere.
	Space weather	

3 Categorising Disasters

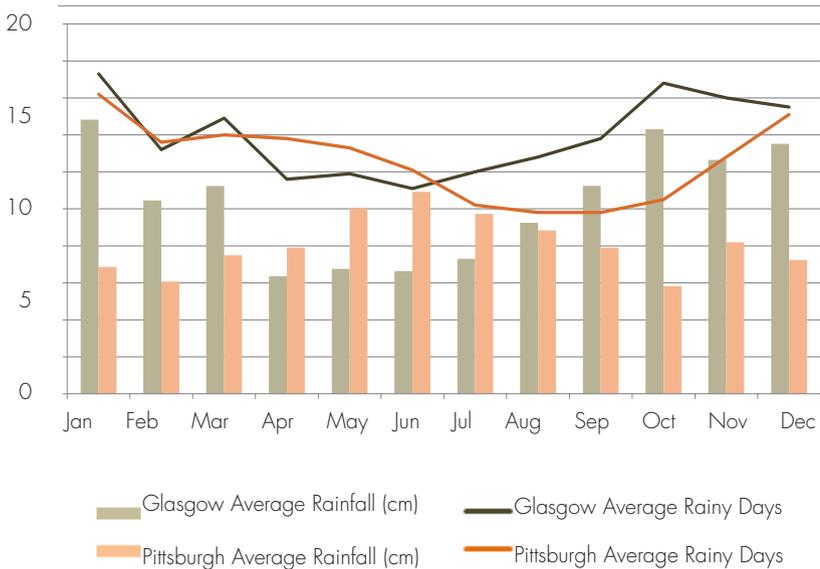


4 Occurrence Frequency of Disasters

To control the water disasters, there are many policies and organizations in Scotland. The Scottish Advisory and Implementation Forum for Flooding (SAIFF) which has representatives from Scottish Government, local authorities, Scottish Water and Scottish Environment Protection Agency (SEPA) published the guidance 'Surface Water Management Planning Guidance' as required under the Flood Risk Management (Scotland) Act 2009. According to SEPA, Surface water flooding is a significant problem in Scotland. The National Flood Risk Assessment (NFRA) published by SEPA in December 2011 estimated that around 125,000 properties are at risk of flooding from all sources (Scottish Government 2013). They are claiming that development and urbanization of removing vegetation and building over green space reduces infiltration and evapotranspiration and it causes an increase in both the volume and rate of surface water. To prevent this phenomenon, set surface water management planning (SWMP).

THE FLOOD POLICIES OF GLASGOW AND PITTSBURGH

Despite its northerly latitude, similar to that of Moscow, Glasgow's climate is classified as oceanic. From August, the number of rainy days and rainfall increase until October. There is more rain during the winter than the summer months. The data shows that the number of rainy days is also rising while the average rainfall is increasing. It also demonstrates that the type of rain in Glasgow is small rain such as drizzle. On the contrary to this, rainfall in Pittsburgh is focused in summer even though the number of rainy days in winter is higher than in summer months. In the other words, Pittsburgh has more flood risk than Glasgow in figures. The policies for flood control need to reflect this weather environment and topography.



5 Average rainfall and rainy days in Glasgow and Pittsburgh

The British Waterways Board called Scottish Canals was established by the Transport Act 1962 to manage and maintain the inland waterways. By virtue of the Scotland Act 1998, responsibility for the inland waterways in Scotland was devolved to the Scottish Parliament and was designated as a cross-border public authority under the Scotland Act 1998 (Cross-Border Public Authorities)¹⁷ (Specification) Order 1999 (Scottish Canals).¹⁸The statutory duties of Scottish Canals were transportation in operating and maintaining the waterways. In 1968, Transport act made changes to the use of facilities reflecting the decline in the use of canals and rivers for freight distribution as commercial waterways, cruising waterways and remainder waterways. Scottish Canals also launched a 10-year environment strategy for 2015-2025 in December 2015 and it includes water resource management and flood control. According to them, the flooding risk from canals themselves is very low since the canals work as a large open drainage system and historic evidences are proving this. As part of this strategy, they are preparing climate change for the future to manage flooding risks using canal infrastructure and operations.

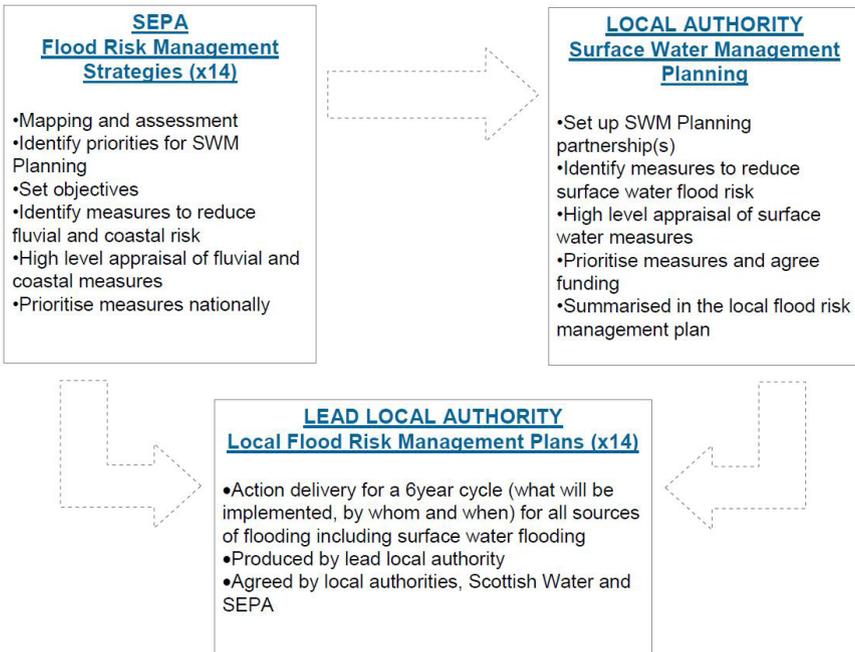
Development and Regeneration Services belonging to Glasgow City Council provided the guidance on 'Flood Risk Assessment and Drainage Impact Assessment' as part of policy to reduce damage from floods in May 2011. Flood Risk Assessment has to be submitted along with a planning application depending on the location, size and type of development. A key requirement for it is that this must consider all sources of flooding and demonstrate how flood mitigation methods will be managed. It will be required to certify that any flood risk associated with the development can be managed now and in the future, taking into account climate change and illustrating how the development will not increase the risk of flooding elsewhere (Flood Risk Assessment and Drainage Impact Assessment 2011). The development, therefore, will not be susceptible to damage or be at risk due to flooding and will have a safe access and exit during the appropriate design flood event.

¹⁷ Flood Risk Management (Scotland) Act 2009: surface water management planning guidance. Edinburgh: Scottish Government, 2013.

¹⁸ "Our Structure and Governance." Scottish Canals Corporate. Accessed January 17, 2017.

Drainage Impact Assessment is a report similar to the Flood Risk Assessment. The developer should prove that the development has a proper drainage system and an infrastructure capacity for smooth flow of water.

At the end of World War Two, Pittsburgh Chamber of Commerce reported that "Pittsburgh has been beset more by flood interruption of industrial activity than has any other comparable industrial area in the world."¹⁹ The report indicated that flood is one of the main reasons why many industries had moved away or refused to come to Pittsburgh. Pittsburgh has suffered seven large, damaging floods in the 20th century. The government of Pittsburgh began to plan the system of flood control measures to prevent flood after the big flood of 1907.



6 Relationship between three Organisations

¹⁹ Roland M. Smith. "CHAPTER IV. The Flood Control Conflict." Flood Control Politics.

One of the countermeasures of flood Pittsburgh prepared is the National Flood Insurance Program (NFIP). Pittsburgh participates in the National Flood Insurance Program which is covering the properties of homeowners and renters while most homeowners insurance does not cover flood damage and it is not a governmental requirement or regulation.

Three rivers Contingency Planning Association is formed in 1985. Its goal is to promote education and the timely exchange of information among its members and partners, from both the public and private sectors, including a wide range of industries. They are assisting members in developing awareness and improving skills in the fields of not only business continuity but also contingency planning, organizational resilience, critical infrastructure protection, and disaster recovery.

chapter 4

A photograph of a multi-story apartment building with a grid of windows and balconies. The building is the background for the text. The text is white and reads "HOUSING RESILIENCE".

HOUSING RESILIENCE

HOUSING FOR A RESILIENT CITY – WITHIN GLASGOW AND PITTSBURGH.

Initially “resilience” seems an inclusive measurement of clearly determining the ability of a city to confront “shocks and stresses”.¹ However, following analysis of the term - and its connotations - it is evident resilience is a much broader concept which covers a spectrum of issues. As the concept has evolved it has become apparent that housing is a distinguishing factor in the resilience of a city. Housing can be categorised a “stress” as inadequate housing stock can weaken the fabric of a city over a prolonged period of time. A substandard housing stock will have a profound impact on other factors, such as health, social equality, and community resilience – the degree to which residents within the same community get on – and will have the potential to further erode the resilience of a city.

Historically, Glasgow has struggled to supply and maintain a housing stock that has successfully provided suitable shelter for its entire population demographic – most notably those in lower income brackets. Figures published in 1951 conveyed that large portions of the population inhabited squalid conditions. These figures stated that an estimated 307,833 families lived in 295,472 homes – an approximate shortfall of 12,361.² Of these homes 86, 592 were single-room apartments, meanwhile an additional 305,739 provided only two rooms.³ The most socially deprived area was Hutchesontown, where almost 90% of residential dwellings provided only one or two rooms.⁴ These poor living conditions proved detrimental to the health and general well being of the city population. Comparably conditions within Glasgow’s housing stock proved far worse than other major metropolitan areas within the United Kingdom as almost 163 people lived per acre, Manchester – the next available comparable city had a density of more that half this figure with 77.4 people living per acre.⁵

¹ Appendix 1. The Resilient City – Glasgow and Pittsburgh [DRAFT APRIL 2017] page 11.

² Andrew Gibb, *Glasgow: The Making of a City*. Glasgow, Scotland: Croom Helm, (1983) p.161

³Gibb, *Glasgow: The Making of a City*, p.161

⁴ IBID, p.161

⁵ IBID, p.161

The legacy of these Victorian slums led to the establishment of various Comprehensive Development Areas – CDA. Huge swathes of the city were designated for complete demolition - at an extraordinary rate. Within Glasgow almost a twelfth of the city's total area was identified within the 29 Comprehensive Development Areas by 1957.⁶ These areas mainly encompassed large working class communities, as wealthier middle class, outer lying, and westerly suburbs remained largely untouched. Within these 29 CDA's an estimated 97,000 homes were earmarked for demolition at a rate of around 4,500 per annum until 1980.⁷ However, as of 1969 only nine of the designated areas had received formal backing from the Secretary of State for Scotland. This was due to long delays in preparatory work, and obstacles in detail planning and submission of associated documentation. As a result the demolition was not evenly spread as intended, but focused in concentrated areas. As redevelopment proceeded the huge social impact of these vast demolitions became apparent with entire communities with deep historic routes around the city being completely dismantled, destroying decades of community networks and removing the social resilience this provided. This led to the eventual termination of the Comprehensive Development Programme in 1974.⁸

Pittsburgh has also endured many difficult periods regarding its housing stock. Similarly to Glasgow, the post-war period seen much of Pittsburgh's housing stock deemed unacceptable as it had deteriorated into a dilapidated state. During the late 1950's Pittsburgh embarked on a comprehensive programme of redevelopment in an effort to revive the central business district and stimulate the stagnant economy.⁹ This effort was to alleviate pressure on the economy and increase the competitiveness of Pittsburgh as it experienced declining heavy industry and stagnated population growth.¹⁰ Efforts were also aimed at discouraging large companies with historical links to the city relocating elsewhere in the United States due to poor living conditions -

⁶ Andrew Gibb, *Glasgow: The Making of a City*. Glasgow, Scotland: Croom Helm, 1983

⁷ Andrew Gibb, *Glasgow: The Making of a City*. Glasgow, Scotland: Croom Helm, 1983

⁸ *IBID*, p. 170

⁹ Roy Lubove, "The Pittsburgh Renaissance: An Experiment in Public Paternalism", *Twentieth-century Pittsburgh*, Vol. 1. (Pittsburgh: University of Pittsburgh Press, 1996), p. 104

¹⁰ Roy Lubove, "The Pittsburgh Renaissance: An Experiment in Public Paternalism", *Twentieth-century Pittsburgh*, Vol. 1. (Pittsburgh: University of Pittsburgh Press, 1996), p. 104

which were eroded by thick smog that often engulfed the city, and frequent flooding.¹¹

Despite poor living conditions housing was not integrated into the initial master plan. However, by the late 1950's the aging and decayed housing stock could no longer be neglected as it was failing to support the population of the city.¹² Mass shortages and a deterioration of the existing stock contributed to a situation that was further aggravated by the mass displacement of low in-come individuals affected by the stalled redevelopment of the Lower Hills district. In 1960 it was claimed that almost 50% of dwellings – estimated to be 238,000 – were constructed prior to 1920.¹³ Furthermore, of these properties, almost half were erected before 1900, meaning the average age of housing within Pittsburgh was greater than 50 years old.¹⁴ Additionally, 112,318 (22.3%) properties in Allegheny County were deemed “deficient”, with 80% of these located within the Pittsburgh city area.¹⁵ The resilience of the city was affected as a failure to provide suitable shelter ranked Pittsburgh bottom among 14 of the largest cities in the United State for the percentage (49.1%) of non-whites living in properties that were classified as dilapidated, or deteriorating.¹⁶ An assessment of housing stock in 1960 conveyed that 17,444 (3.4%) dwellings were deemed dilapidated, with a further 67,806 (13.5%) categorised as deteriorating.¹⁷ The issue of substandard housing was further exasperated, as an estimated 27,064 (5.4%) homes were categorised as sound but without plumbing.¹⁸ Despite these dire statistics construction of new homes was a mere 1% of existing housing inventory annually.

A report into the state of the Pittsburgh Economy – A Pennsylvania Economy League Report (1957) – stated that the future of Pittsburgh's renaissance movement relied on the resolution of the housing crisis. It also conveyed that the housing of minority groups, aged, and lower-income residents had been

¹¹ Lubove, “The Pittsburgh Renaissance: An Experiment in Public Paternalism”, Twentieth-century Pittsburgh, Vol. 1, p. 104

¹² Lubove, “The Social Dimensions of the Renaissance”, Twentieth-century Pittsburgh, Vol. 1. (Pittsburgh: University of Pittsburgh Press, 1996), p.142

¹³ Lubove, “The Social Dimensions of the Renaissance”, Twentieth-century Pittsburgh, Vol. 1, p.143

¹⁴ IBID, p.143

¹⁵ IBID, p.143

¹⁶ IBID, p.160

¹⁷ Lubove, “The Social Dimensions of the Renaissance”, Twentieth-century Pittsburgh, Vol. 1. (Pittsburgh: University of Pittsburgh Press, 1996), p.143

¹⁸ IBID, p.143

further depletes community cohesion and social resilience, as residents live in fear of potential eviction, displacement, or homelessness.

A survey conducted in the mid 2000's concluded that the issue of limited ethnic diversity is particularly prevalent within African American communities in Pittsburgh. This is due to on-going economic circumstances, coupled with continued racial segregation and geographical concentration of affordable housing. Often this resulted in black households encountering physical or structural issues within their properties.²⁵ In 2004 it was estimated that 11.3% of dwellings with black occupants had severe or moderate physical or structural issues – this is appose to only 4.1% of affordable housing provided for white populations.²⁶ African Americans were also more likely to rent property with an estimated 56.6% of the demographic renting accommodation – compared a 43.3% average and just over 25% of the white population renting.²⁷ Overall, almost 137,000 households in Allegheny County were in the extremely low-income bracket – 60% of these were one-person households.²⁸

²⁵ Christopher Briem, "City of Pittsburgh Neighbourhood Profiles", Pittsburgh Economic Quarterly, University Centre for Social and Urban Research | University of Pittsburgh (June 2011), page 3.

²⁶ IBID, page 3.

²⁷ IBID, page 3.

²⁸ IBID, page 3.

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²⁶ IBID, page 3.

²⁷ IBID, page 3.

²⁸ IBID, page 3.

ANDERSTON, GLASGOW – UNITED KINGDOM

As the correlation between housing and resilience has been established, a neighbourhood within Glasgow and Pittsburgh has been identified for further study. These areas were redeveloped during the 20th century and are - again - enduring a period redevelopment. The neighbourhoods identified are similar in scale and have a distinct history and character within Glasgow and Pittsburgh.

The area chosen for study within Glasgow is Anderston – an inner city neighbourhood situated directly west of the city centre. Anderston is a historic neighborhood with a distinct sense of local identity. Historically Anderston was a self-sufficient area, with ample local amenities including shops, leisure facilities and a plethora of employment opportunities.²⁹ Similarly to other working class areas around Glasgow, many residents had long historical links within the area and an established network of family and friends. However, as the 20th century prevailed the need of the city and the way the population interacted with the urban environment was rapidly evolving. The increased presence and importance of motorcars encouraged large-scale infrastructure developments, such as the motorway (M8). The M8 forced a route through the heart of the city establishing a principle route for transportation, but consequentially creating a barrier within communities.

Its route passed directly through the historic Anderston Cross – an area that served as the principle heart of the commerce within Anderston.³⁰ This was replaced with the Anderston Centre, which strived to amalgamate multiple services – retail, a transport hub, offices and housing - within a single construct. Despite housing in Anderston proving no worse than many other inner city locations, the conception of the motorway accelerated comprehensive redevelopment of the area.

²⁹ Guthrie Hutton, *Old Anderston And Finnieston*. 1st ed. Catrine, Stenlake. 2007 page 4.

³⁰ Hutton, *Old Anderston And Finnieston*. 1st ed, page 5.

Fig 7 Aerial image conveying the destruction and disruption caused as the M8 (motorway) forged a route through central Glasgow. Image also depicts the mass demolition that took place in Anderston as part of the slum clearance and subsequent “comprehensive redevelopment”

Source: hiddenglasgow.com | Glasgow Inner Ring Road forum (image widely available online)

URL - <http://www.hiddenglasgow.com/forums/viewtopic.php?t=642>



Fig 7.

Fig 8 & Fig 9 These maps further document the destruction caused to Anderston during the “comprehensive redevelopment” of the post war era. Fig 8 demonstrates the dense urban fabric (1950’s), whilst Fig 9 conveys a much-reduced density and stark division of the area as a result of the M8 (motorway) forcing a route directly through the centre of the neighbourhood. Depicting the area in 2016, it is evident from Fig 9 the density of the area remains greatly reduced

Anderston ■

Anderston Cross ●



Fig 8.

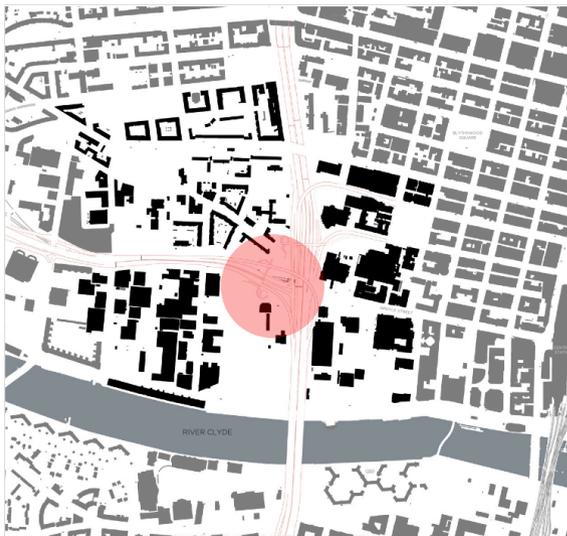


Fig 9.

Anderston was greatly affected by this Comprehensive Redevelopment, the stresses of which are still impacting the area's resilience to the present day. The concept for Anderston included removing all existing homes, shops and industry. Importantly the district was also swept of its population – which decreased 66.9% - from 21, 457 in 1961 to 9,265 in 1971.³¹ This figure was to be further significantly reduced, as initial plans indicated that of the residents displaced, only 3000 were to be returned to the area.³² The redevelopment of Anderston cleared the area of Victorian tenements and public buildings, replacing these with mass-produced slab blocks that were subsequently arranged to ignore the original Victorian grid street pattern – the westerly portion having already been disjoined as the motorway forced a route directly through the city. This mass disruption culminated in the displacement of population from within the city boundary to newly established “New Towns” – such as Cumbernauld on the peripheries of the city. Selective processing meant those offered accommodation in new towns were often highly skilled workers, or professionals.³³ This had a profound impact on the resiliency of the city, resulting in a high dependency ratio of young and old and those employed to unemployed. This distorted demographic pyramid had consequences placing increased pressure on social services and physical infrastructure within the city boundary.³⁴

In more recent years Anderston has been further redeveloped with much of the mid 20th century developments being demolished and historic street patterns reinstated. This constant refurbishment not only causes physical disruption to the urban fabric of the city and wider streetscape, but also places social stresses on the residents of these locations. As the area regains a sense of place with tenement type dwellings resurrected the residents of the post war developments are once again displaced – some for the second time within living memory.³⁵

³¹ Gibb, Glasgow: The Making of a City, page 170

³² Frank Worsdall, *The Tenement*, (Edinburgh, Scotland: Chambers; 1st ed. Edition, 1979) page 144.

³³ Gibb, Glasgow: The Making of a City, page 170

³⁴ Gibb, Glasgow: The Making of a City, page 170

³⁵ Rebecca Tunstall and Stuart Lowe, “Breaking Up Communities?”, *The Social Impact of Housing Demolition in the Late Twentieth Century*, (York, Connected Communities, 2012) page 2.

EAST LIBERTY, PITTSBURGH - UNITED STATES

East Liberty, Pittsburgh is a culturally diverse district located in the east of the city. During the mid 20th century East Liberty had become a thriving market district with a favourable reputation as a commercial destination.³⁶ However, similarly to Anderston, as the mid 20th century elapsed plans to redevelop the area were devised to halt a declining footfall.³⁷ The 1960's witnessed many large-scale interventions by the City of Pittsburgh's Urban Redevelopment Authority (URA). They implemented a master plan that strived to create a vast pedestrianized avenue - to compete with the out of town shopping complexes - along Penn Avenue, East Liberty's main thoroughfare.³⁸ This was to be surrounded by roads and infrastructure, such as expansive car parks, which were principally designed to accommodate the increased presence and importance of the motorcar. A new ring road subsequently enclosed the historic heart of the neighbourhood. A copious number of small and independent retailers were lost during the implementation of this master plan as premises were demolished to accommodate new infrastructure, which was deemed vital to the evolution of East Liberty.³⁹

However, it was the housing redevelopment plan, which arguably had a greater and profound impact on the reputation of the neighbourhood.

³⁶ Violet Law, "At Liberty to Speak", Pittsburgh City Paper, Pittsburgh (01/11/2007)

- www.pghcitypaper.com/pittsburgh/at-liberty-to-speak/Content?oid=1339275

³⁷ East End Historical Society, Images of America: Pittsburgh's East Liberty Valley (Charleston: Arcadia, 2008) page. 121

³⁸ Urban Redevelopment Authority and Joseph M. Barr, Relocation of 100 Households in the East Liberty Urban Renewal Project City Planning Commission (Pittsburgh, 1967)

³⁹ Dan Fitzpatrick, "Plans for Progress: Initial Makeover Was Done with Good Intentions But Ended with Dismal Results", Pittsburgh Post Gazette (May 23, 2000)



10 Pittsburgh (*not to scale*)

Pittsburgh downtown highlighted in blue. ●

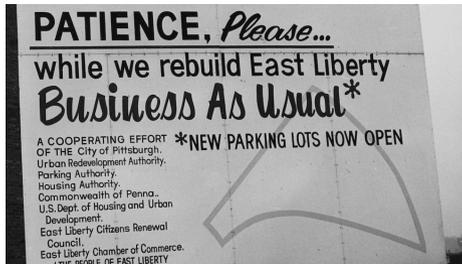
East Liberty outlined in red. □



11 East Liberty (map not to scale) denotes the network of one-way streets which formed Penn Circle. These were developed during the 1960's 'renewal' of East Liberty to encourage growth and development. However, this development further accelerated the demise of East Liberty. The blue highlighted area indicates the portion of Penn Avenue that was pedestrianized – this was implemented as part of the same master plan.



12



13



14

Images depict the recent completion of East Liberty downtown renewal, and the new pedestrianized precinct along Penn Avenue. Signage boasting of extensive new car parking was intended to boost the competitiveness of the area against new “out of town” shopping parks. However, it was these measures that further contributed to the areas accelerated demise.

Fig 12 Infrastructure being tested in East Liberty’s urban renewal area 1969.
source | *East Liberty Development Inc. Archive*
URL - <http://www.eastliberty.org/news-events/page/13/>

Fig 13 Pedestrianized precinct nearing completion in January 1969.
source | *East Liberty Development Inc. Archive*
URL - <http://www.eastliberty.org/news-events/page/13/>

Fig 14 Signage conveying the continued redevelopment. Emphasizing increased presence of car parking in the East Liberty downtown.
source | *East Liberty Development Inc. Archive*
URL - <http://www.eastliberty.org/news-events/page/13/>

The City of Pittsburgh's housing authority noted that the overcrowding and squalor that was consuming the adjacent Hill District was predominantly affecting low-income households.⁴⁰ This was due to repeated displacement, as various areas around the city were earmarked for substantial development – such as the redevelopment and clearance of Lower Hills to accommodate the construction of a new entertainment arena.⁴¹ A solution to this prevailing housing crisis was to construct a series of mass housing estates, comprising of three high-rise residential towers providing an estimated 500 dwellings.⁴² These housing estates garnered a reputation as crime havens, and the onset of social residualisation deterred individuals from visiting East Liberty. This dwindling footfall resulted in a dramatic decline of retail outlets with an estimated 570 businesses in 1959 falling to just under one hundred in 1979 – many of which serving only a local audience for residents amenity.⁴³

Despite the new high-rise housing projects providing an estimated 500 homes, the in-flux of low-income African-American citizens failed to support the once buoyant economy. An economic and racial uniformity rapidly emerged within the new tower blocks, with the African-American demographic three times more likely to live in poverty than white individuals.⁴⁴

⁴⁰ East End Historical Society, *Images of America: Pittsburgh's East Liberty Valley*, page. 121

⁴¹ Homes and Communities: United States Department of Housing and Urban Development (HUD), *The Hill District: History* (Accessed: 08/02/2017)

⁴² East Liberty's Transformation, Tim Schooley, *Pittsburgh Business Times* (12/08/2005)

⁴³ Law, "At Liberty to Speak", *Pittsburgh City Paper*

⁴⁴ Christopher Briem, "City of Pittsburgh Neighbourhood Profiles", *Pittsburgh Economic Quarterly*, University Centre for Social and Urban Research | University of Pittsburgh (June 2011), page 3.



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16

Images convey the mass clearance of historic buildings in East Liberty. These buildings were replaced with modern developments, such as the high-rise public housing evident in Fig 16. Liberty Park – top left. Penn Circle Apartments – top right.

Fig 15 – source | East Liberty Development Inc. Archive
URL - <http://www.eastliberty.org/news-events/page/13/>

Fig 16 – source | East Liberty Development Inc. Archive
URL - <http://www.eastliberty.org/news-events/page/13/>

Prior to the completion of the tower blocks – East Mall, Penn Circle Towers and Liberty Park – an estimated 19.3% of the population was black, in stark contrast this unprecedentedly rose to 46.3% in 1980.⁴⁵ The segregation and isolation of residents, racially and economically, caused uniformity within communities and increased prejudice towards such minority groups.⁴⁶ The resentment within these communities continued to swell as buildings were left to deteriorate into a completely dilapidated state, further accelerating the neighbourhood's isolation from wider social networks within Pittsburgh. This led to a steady increase in crime rates which wildly exceeded the city average. In 1973, shortly after the completion of the housing projects, 1,023 serious crimes were reported – 53% more than the city average.⁴⁷

Architecturally these new tower blocks were an unprecedented form of modern living. Dominating the skyline of eastern Pittsburgh they demonstrated an obvious segregation between the many of the poorest residents and more affluent populations – aggravating economically challenged residents. This physical separation immediately identified the residents as economically disadvantaged, emphasizing the instability associated with the tenancy of such housing projects.⁴⁸

⁴⁵ Department of City Planning, A Community Profile of East Liberty, Pittsburgh (1974)

⁴⁶ Sabina Deitrick, "The Supply and Demand of Affordable Housing in Allegheny County", Pittsburgh Economic Quarterly, University Centre for Social and Urban Research, University of Pittsburgh (2011) page. 2

⁴⁷ University of Pittsburgh School of Social Work, An Atlas of the East Liberty Neighborhood of Pittsburgh, Pittsburgh (1977)

⁴⁸ Annemarie Gray, Kassie Bertumen, Lawrence J. Vale, Shoman Shamsuddin, What Affordable Housing Should Afford: Housing for Resilient Cities. Massachusetts: Massachusetts Institute of Technology, (2014) page. 24



17 East Mall Apartments, continuing to dominate the East Liberty cityscape during demolition. (2005)

Source – Gracie Jane Gollinger / Flickr.
URL - <https://www.flickr.com/photos/>



18

1. East Mall Apartments
2. Penn Circle Tower
3. Liberty Park Apartments



Fig 18

East Mall Apartments

Completed: 1970
Demolished: 2005 (35 years)

Height: 69m
Floors: 17
Units: 160

Spanned Penn Avenue, on eastern periphery of East Liberty downtown zone.



Fig 18

Penn Circle Apartments

Completed: 1970
Demolished: 2009 (39 years)

Height: 81m
Floors: 20
Units: 152

Replaced with large retail outlet.



Fig 18

Liberty Park Apartments

Completed: 1969
Demolished: 2005 (35 years)

Height: 81m
Floors: 20
Units: 158

Replaced with lowrise, mixed income housing.

Following this period of rapid decline, East Liberty had gradually been attempting to regain reputable public opinion within Pittsburgh through a series of redevelopment programmes. These initiatives had varied success. However, in recent years more radical attempts have been made to revitalise the area including the phased demolition and replacement of high-density residential projects from 2005-2009 and establishment of new shopping and commercial properties.

It was East Liberty's tarnished reputation portraying it as a dangerous area due to inadequate housing stock, which most noticeably affected its resilience and posed the biggest obstacle despite regeneration efforts.

ANDERSTON, GLASGOW AND EAST LIBERTY, PITTSBURGH COMPARATIVE ANALYSIS

Acknowledging the stigma and negative connotations attached to high-rise housing is vital in understanding why many of these projects, in both Pittsburgh and Glasgow, failed to support community resilience and promote wider city resilience. Many large scale housing projects subsequently forged racial, economic and religious uniformity within communities as social and physical divides produced a segregated society. As indicated, economic status is vital in supporting community resilience. Therefore concentrations of disadvantaged households can have profound implications on the resilience of communities and the wider city if appropriate support for the residents is lacking. A correlation between disadvantaged households and lower perceptions of community resilience has been identified as job security; poor quality employment and poor access to amenities and support networks are often limited creating an atmosphere of animosity within residents. Animosity is further extenuated within communities with large inequality gaps.

Various other factors have also further hampered the resilience of these once conceptual housing blocks. Welfare reforms, successive governments and various media outlets have – often unintentionally – heralded a negative campaign towards particular social groups and those receiving state welfare.⁴⁹ This often creates community tension, and erodes resilience within society as people categorise neighbours as work-shy and undeserving of government support.⁵⁰

Increased crime and clustering of disengaged communities - within Anderston and East Liberty - decreased the appetite of individuals visiting from other areas within Glasgow and Pittsburgh. This ultimately led to the residents of high-rise council housing developments being socially and physically isolated. Anderston and East Liberty encouraged a negative consolidation of

⁴⁹ Centre for Local Economic Strategies, "Community cohesion and resilience – acknowledging the role and contribution of housing providers: Final report", Centre for Local Economic Strategies (2014), page 5

⁵⁰ Centre for Local Economic Strategies, "Community cohesion and resilience – acknowledging the role and contribution of housing providers: Final report", Centre for Local Economic Strategies (2014), page 5

racial, economic and religious minorities – which studies have shown to be often detrimental to the ability of a community to collectively act resiliently in the event of shocks or stresses.⁵¹ The isolation of disadvantaged groups caused residualisation within adjacent communities and condemned the future communities of Anderston and East Liberty - but also the future of the high-rise housing typology. The sentiment of the high-rise complexes and ambitious 1960's redevelopment plans systematically consumed Glasgow and Pittsburgh as public opinion towards Anderston and East Liberty fell into steady decline – this is reflected in the economic instability of many of the areas residents and segregation from adjacent neighborhoods and social structures. The once thriving communities became desolate serving only a dwindled population. If the successful redevelopment of Anderston and East Liberty is to continue, housing agencies should actively seek to establish inclusive communities that can support community resilience, therefore promote resilience of the wider city. This could potentially be achieved through supporting a social structure that nourishes economical livelihoods and empowers communities by making them more directly involved in the governance of their community - promoting a sense of ownership and belonging, creating a safe environment for residents and visitors.⁵²

The almost constant cycle of building, regeneration and demolition of council estates or public housing projects exposes them to many of the failures of post-war housing and urban renewal. Government authorities and housing organizations risk repeating mass demolition of housing – particularly regarding post war estates - which would reflect the slum clearances of the post war period. This policy of mass demolition exposes many of the residents to the same large-scale disruption, which effected individuals during the mid 20th century.⁵³ This would have a profound impact on community

⁵¹ Anthony Heath & James Laurence, "Predictors of community cohesion: multi-level modelling of the 2005 Citizenship Survey", Department of Communities and Local Government (2008) page. 17

⁵² Woodman, Elis. Post-war Cities Regeneration: Improvement Over Replacement, The Architects Journal, 2015 - date accessed – 06.01.17
www.architectsjournal.co.uk/news/global-cities-expert-issues-warning-on-affordable-housing/8685621.article

⁵³ Rebecca Tunstall and Stuart Lowe, "Breaking Up Communities?", The Social Impact of Housing Demolition in the Late Twentieth Century, (York, Connected Communities, 2012) page 2.

and social resilience, which would therefore have a detrimental effect of the resilience of the wider city. This diminishing of established communities through perusing an aggressive demolition policy would prove ineffective in alleviating the housing crisis and tackling social problems, but would likely cause existing problems to become further exasperated.⁵⁴

⁵⁴ Alice Belotti, Estate Regeneration & Community Impacts | Challenges and Lessons for Social Landlords, Developers & Local Council, (London, London School of Economics, Housing and Communities, 2016) page 4.



19



20

High rise social (public) housing developments in Anderston, Glasgow (Fig 19) and East Liberty (Fig 20) being simultaneously imploded. Both towers were constructed as part of wider post-war redevelopments – 14 Shaftesbury Street, Anderston | demolished (2012) Penn Circle Apartments, East Liberty | demolished (2009)

Fig 19 source – Paisley.org.uk | Scotlands Biggest City Stops to View High Rise's Demise URL - <http://www.paisley.org.uk/2013/09/scotlands-biggest-city-stops-to-view-high-rises-demise/>

Fig 20 source – Otherstream.com | Building Fall Down Go Boom IV URL - <http://www.otherstream.com/2009/05/>

Community resilience can be enhanced through developed friendship networks as individuals bond with residents of the same neighbourhood.⁵⁵ Recent research suggests these connections can be particularly important to new residents, as they are likely to seek help and support from existing community networks.⁵⁶

However, mass demolition not only has a detrimental effect on community and social networks, it also carries large cost burdens which can act as a stress on the city – limiting its ability to spend money on other causes or to recover from sudden shocks. These costs may arise from the demolition process itself, but also associated costs – such as higher costs to re-house displaced residents, potentially within private sector markets with higher housing benefit receipts due to depleted subsidized housing stock.⁵⁷ The relocation of residents can also be a potentially lengthy process depending on the scale of the project. If mass displacement is occurring, time scales may possibly be set to span up to a decade. This can result in dwellings remaining vacant for prolonged periods and encourage higher levels of crime – such as arson and theft.⁵⁸ A large proportion of vacant dwellings would also lead to a dwindled population which may struggle to support the local economy and public services such as schools. These resultant implications will have profound effects on the resilience of that location, as community infrastructure and amenity has been found to have consequential influence on the resilience of a neighborhood, with communal services – such as pubs and well maintained public green spaces - further aiding the

⁵⁵ Centre for Local Economic Strategies, "Community cohesion and resilience – acknowledging the role and contribution of housing providers: Final report", Centre for Local Economic Strategies (2014)

⁵⁶ Yunas Samad, "Muslims and Community Cohesion in Bradford" (York, Joseph Rowntree Foundation, 2010) page 26.

⁵⁷ Prof Anne Power, "Council Estates: why demolition is anything but the solution", London School of Economics | Housing and Communities, (04/03/2016) date accessed – 27/03/2017. eprints.lse.ac.uk/67833/1/Council_estates_why_demolition_is_anything_but_the_solution.pdf

⁵⁸ Prof Anne Power, "Council Estates: why demolition is anything but the solution", London School of Economics | Housing and Communities, (04/03/2016) date accessed – 27/03/2017. eprints.lse.ac.uk/67833/1/Council_estates_why_demolition_is_anything_but_the_solution.pdf

establishment of community resilience.⁵⁹

Regarding Anderston and East Liberty, a more sensitive – yet effective - program of regeneration has been implemented. This strategy has involved the selective demolition of failing residential blocks, but refurbishment of others. This strategy has seen many existing blocks retrofitted: with external cladding renewed, improved thermal performance of properties, and internal works to improve communal areas. These schemes tend to have lower social costs and fewer potentially problematic circumstances, which could result in lasting negative connotations. The avoidance of complete demolition affords the opportunity to increase density through infilling gap sites in estates that were ill planned and fail to maximize land available – particularly in expensive inner city locations – such as Anderston. There are a number of benefits of extensive refurbishment oppose to wholesale demolition such as an improved external aesthetic of the blocks. This can improve the perception of the community within wider city.

The aesthetic negatively associated with social housing in the United Kingdom and United States - of monolithic tower blocks in a state of absolute disrepair is increasingly irrelevant.⁶⁰ This assumption should be tackled if the neighbourhood is to successfully contribute to the resilience of the city. If negative opinion is reduced the community will be able to integrate more with adjacent areas – therefore increasing the ability of society to work collectively when overcoming any shocks or stresses a city may endure.

An estimated 17% of the United Kingdom's demographic live in social or council housing (2010).⁶¹ It is therefore vital social housing is considered as having a positive impact on a neighborhood and surrounding areas – oppose to being associated with deprivation, crime and poor living standards. Social housing provides a positive contribution to the resilience of the city as it offers the provision of safe, affordable and decent shelter for a demographic that would not otherwise be able to afford property. However, the brutalist aesthetics often prevalent at council estates drive a stigma for

⁵⁹ Centre for Local Economic Strategies, "Community cohesion and resilience – acknowledging the role and contribution of housing providers: Final report", Centre for Local Economic Strategies (2014), page 9

⁶⁰ Pamela Wood, *The Media Must Stop Protraying Council Estates as Crime – Ridden and Uncared For*, "politics.co.uk", (10/02/2017) – date accessed 09/03/2017

⁶¹ Department for Communities and Local Government, *English Housing Survey | Household Report 2009-2010* (Department for Communities and Local Government, London, 2011) page 9



21

Vast amounts of waste and general disruption are created during large-scale demolition of housing estates.

Fig 21 Red Road Estate, Glasgow.

source – STV News | Glasgow Housing Association URL - <https://stv.tv/news/west-central/1330525-barry-grant-fiance-chased-by-wasp-misses-red-road-flats-demolition/>



22|.....



23|.....

Renowned urban renewal of Park Hill Estate, Sheffield. Efforts were placed into extensively refurbishing property appose to wholesale demolition. This minimised waste, and reduced the time scale of the works – reducing disruption endured by the community. Extensive refurbishment additionally helps support community resilience as extensive refurbishment reduces – or eliminates – the chance of resident displacement, therefore supporting the development of existing social structures.

Fig 22 External aesthetic of Park Hill, before refurbishment

Fig 23 External aesthetic of Park Hill after completion of refurbishment.

Source – *Reddit.com* | *UK Government Declares war on Brutalist Architecture (image widely available online)* URL - https://www.reddit.com/r/europe/comments/5dym6z/uk_government_declares_war_on_brutalist/

THE IMPORTANCE OF DESIGN AND AESTHETICS IN ESTABLISHING RESILIENT HOUSING

As established the aesthetics of housing can have implications on the perceptions held by adjacent areas of a neighbourhood.⁶⁴ Also established is the correlation a poorly designed external and internal environment can have on increasing anti-social behaviour and crime rates. However, poor aesthetics and residential design can have a profound detrimental impact on the mental health of residents. The massing or external façade treatment of mass housing developments can have a significant impact on how residents view their home or neighbourhood and in some cases how residents feel about their worthiness in wider society.⁶⁵ Residents in mass subsidised – social or public – housing estates often aspire to live in dwellings that represent social norms in that region or country.⁶⁶ The popularity of large-scale housing schemes has dwindled in the decades since the mid 20th century as housing developments have endured reduced government funding, and increased legislative pressures. However, the experimental housing typologies and unprecedented estates of great scale that were constructed during the mid 20th century may have never been appropriate as social housing. Design in social housing should be more constrained as architects and designers should be conscious of accepted norms in housing design – this does not denote a designers freedom to be flexible when designing within the residential sector, but acknowledges individuals in disadvantaged communities are often limited to this subsidised housing when decided where to live.⁶⁷ Therefore more aesthetically progressive housing should potentially be reserved for the private housing sector.

In Glasgow and Pittsburgh post-war architects pursued conceptual residential schemes which deliberately looked vastly different from the Victorian

⁶⁴ Centre for Local Economic Strategies, “Community cohesion and resilience – acknowledging the role and contribution of housing providers: Final report”, Centre for Local Economic Strategies (2014), page 9

⁶⁵ Clare Cooper Marcus, *The Aesthetics of Family Housing: the Residents’ Viewpoint*, “Landscape Research” (College of Environmental Design, University of California, California, 1982) page 9

⁶⁶ IBID page 9

⁶⁷ Clare Cooper Marcus, *The Aesthetics of Family Housing: the Residents’ Viewpoint*, “Landscape Research” (College of Environmental Design, University of California, California, 1982) page 10

tenements which had gradually evolved into 20th century slums or the rows of dilapidated vacant dwellings which infested the streets of Pittsburgh. Ironically current regeneration efforts within these cities aim to complete a return to the traditional housing forms, emphasizing traditional street layouts. The vast 1960's modernist estates have been discredited as local governments pursue an aesthetic that they feel is more applicable to residential design.

RESILIENCE + HOUSING

Housing is vital in the resilience of cities as it provides a base that supports many of the other factors considered pivotal in supporting resilience. This research project has conveyed that it is not only physical resilience of housing which is important in contributing to the overall resilience of cities, but that housing for resilient cities should afford the opportunity to support the social structures of communities and individuals. This will ensure they are integrated into wider society, establishing strong community resilience and creating social resilience within the city.

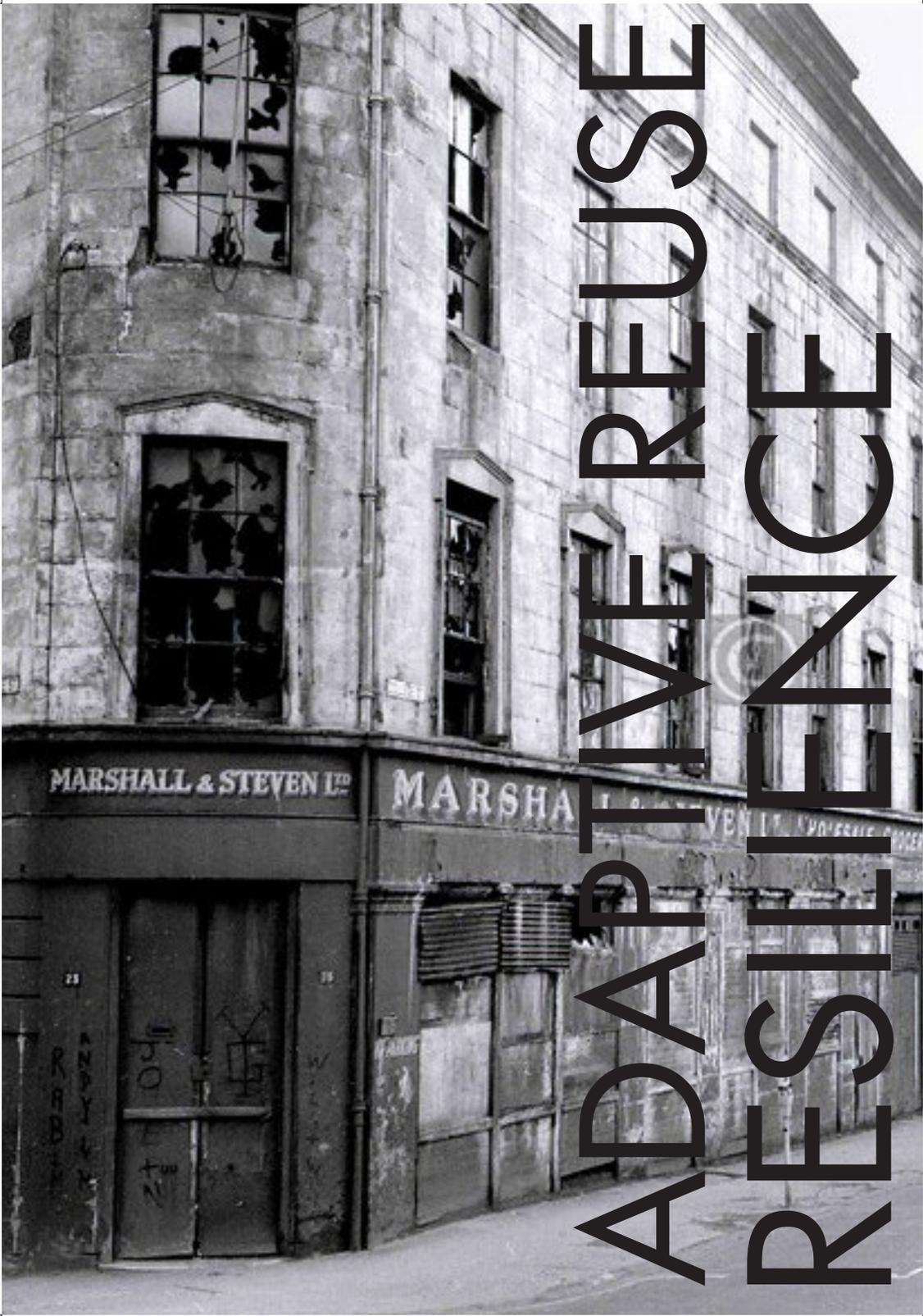
This research has demonstrated that if housing is to have a positive contribution to the resilience of cities it must support the entire population demographic – specifically those in the lower income brackets, which are increasingly likely to have a limited choice of accommodation and rely on government subsidised property. Furthermore, housing should be available for the poorest of residents and provide the opportunity of interaction with the wider metropolitan area - enhancing the ability of a population to unite in combating any shocks or stresses that the metropolitan area may be exposed to. Supporting the community structure should also incorporate supporting the economic livelihood of individual residents – providing an affordable base over a prolonged period. Despite housing being designed to reach beyond the site boundary, it is vital that communities are self-sustainable with onsite facilities and community infrastructure.

My study into the effectiveness of housing in creating an effective, socially resilient city has also established the importance of design and the specific architectural style of the housing. This was most successfully conveyed through exploring the negative connotations attached to the expansive post-war housing estates constructed in the United Kingdom – and to a lesser extent in the United States. Despite these estates providing structurally resilient homes many are being demolished less than half a century after their inception. This is due to the detrimental effect many of these estates had on adjacent neighbourhoods and the resilience of wider society. Many of these large monolithic, modernist towers created crime heavens, leaving residents intimidated and undermined the resilience of the community as residents feared becoming a victim of crime. The architectural intent of these buildings inadvertently created a clear physical segregation between the new post-war estates and established adjacent neighbourhoods. Conditions in these

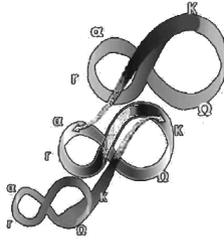
estates quickly deteriorated trapping residents in isolation as crime levels soared and maintenance of the buildings were left to deteriorate. Individuals found themselves residualised, and shunned from wider society.

Glasgow and Pittsburgh are cities, which have long struggled to maintain a housing stock that provides for the entire population demographic. However, it has been this struggle through various regeneration attempts - in areas such as Anderston and East Liberty - that Glasgow and Pittsburgh have developed policy to further enhance the resilience of the city in the future.

chapter 5

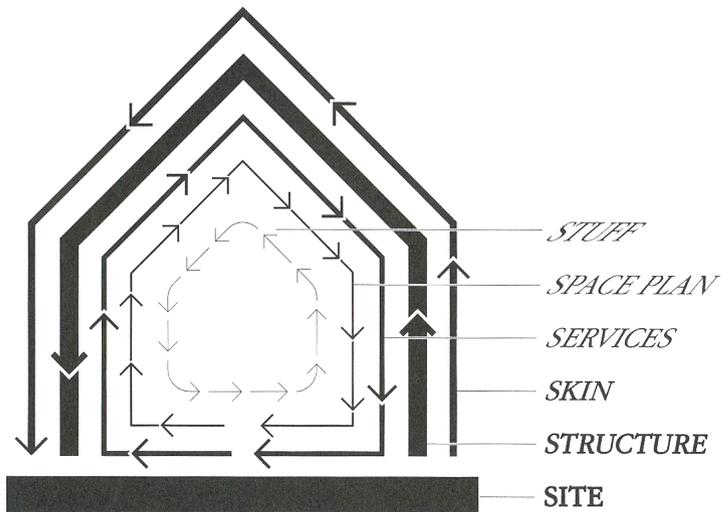


ADAPTIVE REUSE RESILIENCE



24 Adaptive Cycle
Diagram, 2002

The origins of resilience was based on the adaptive ecological cycle. The same concept is applied to adaptive reuse.



25 Stewart Brands 'shearing
layers', 2010.

THE PRINCIPLES OF ADAPTIVE REUSE

'Adaptive reuse' uses existing building stock in cities that have fallen short of their intended purpose either through dissolution of interest, money or need. Unable to keep up the changing environment around them, occupants move out and buildings become obsolete, causing obstacles for city planning development. Demolition and demise is often the quick and easy response, especially if the land capital gains are far more attractive than the building occupying the site. This solution has become a typical by-product of consumerism and wastage. Adaptive reuse is therefore an urban intervention that is not new, but it is inherently sensitive to the past, and builds on what was there before it, in order to see a new future.

By reflecting on two historic influential planners in urban discourse, Scottish urbanist and biologist Patrick Geddes (1854 - 1932) and American town planner Jane Jacobs (1916-2006), a conscious way of designing cities that respect the social, economic, cultural and environmental values ingrained in a city's dynamism is revealed. Their theories help to expand on how adaptive reuse can engineer resilience into cities to that respect.

Geddes' theory and practical work in urbanism developed from his formal training in biology concepts, where he applied natural evolutionary constructs to the man-made structuring of a city, whilst encouraging a strong relationship between the two.¹ Similarly, urban resilience theory derived from ecological resilience, applying the study of the natural adaptation process towards the development of a city and its processes.² This lineage highlights the consideration of what was physically there before as well as the hidden network of systems in place - whether that be geographic conditions, social systems or ecological systems. The existing network and conditions can set up a framework to act upon - and it was this belief of integrating the 'analytical triad of *'place, work and folk'* - geographical, historical and spiritual aspects into place-based city planning that is why Geddes' theories still apply to urban resilience today:³

¹ Volker Welter, *Biopolis*, 1st ed. (Cambridge, Mass.: MIT, 2003).

² Bethany Houlihan et al., *Resilient Cities [Draft]*, 1st ed. (Glasgow, 2017), 51.

³ Volker Welter, *Biopolis*.

*'But any forward movement must in the long run proceed on the main lines of our social inheritance, if it is not to fade into sterility or promote reaction. The next inquiry before us must therefore be with the student of the past, accustomed to sweep full circle from that into the present and thence onwards into the future.'*⁴

Conscious of first establishing the urban and sub-urban condition of a city meticulously before making any major or minor urban moves, this sentiment celebrates the unique conditions of each city, based on the social needs of each. Geddes' theories looked beyond the role of a city planner and architect; he could see the city as a dynamic organism - a theory that has allowed socio-ecological resilience studies to manifest into a contemporary setting, where the former ignorance of the two has now caused a global issue. Practitioners working in adaptive reuse have been led by Geddes' philosophy.

*'But a city is more than a place in space, it is a drama in time.'*⁵

A city's evolution follows a long line of events and planning decisions and by extending the life of buildings, the narrative of resilience embeds itself in the mundane and everyday, through continuing the character and historic significance of the old. Similarly, in 'The Death and Life of Great American Cities', Jane Jacobs saw the monotonous modern city planning of demolishing and building new as an objection against historic identity and integrity. In favouring older historic neighbourhoods, Jacobs argued that a mixture of old and new buildings encouraged diversity, affordability, livelihood, character and 'sense of place':

'old ideas can sometimes use new buildings...new ideas must use old buildings'.⁶

This has been the thread of many preservationists' case for retaining historic neighbourhoods and older buildings as well as encouraging further studies towards validating the socio-economic benefits that can be achieved.

⁴ Patrick Geddes, *Cities In Evolution*, ebook, 1st ed. (London, 1915), https://archive.org/stream/citiesinevolutio00gedduoft/citiesinevolutio00gedduoft_djvu.txt, 84.

⁵ Geddes, *Cities In Evolution*, 265.

⁶ Jane M. Jacobs, *Death And Life Of The Great American Cities*, 1st ed. (Random House, 1961), 88.

Geddes' and Jacobs' concepts provided progressive urban thinking for developing strategies to respect the old whilst responding to the new; setting a base for adaptive reuse to project from.

There can be many possibilities for reusing old buildings which seek to fit the new requirements within the constantly changing city. Emphasis on adaptation rather than re-use, addresses the shift from mono functional static buildings, towards a flexible and open-ended programme, that allows buildings to increase their life expectancy and continue to transform as society requires it to. As buildings consist of components that vary in shape, life-cycle and operation, implementing time based thinking is more suitable to the built environment than applying form based thinking.⁷ On expansion of this, in Stewart Brand's *'How Buildings Learn'*, he acknowledges that the built environment adapts and changes, therefore so too should buildings.⁸ However, as buildings are composed of layers that respond and adapt at different times, he introduced the concept of 'shearing layers' to include 'time' as a factor into the building's layers.⁹ By demarcating a building into 'stuff, space plan services, skin, structure and site', the quickest and slowest changes can be factored in.¹⁰ By addressing this, a reasonable assessment of the level of intervention required and feasibility can be undertaken. This also provides a reference point for future predictions of a building's lifecycle that is based on the changing environment, factoring in 'urban resilience as adaptive resilience'.

⁷Selen Durak, Tulin Vural Arslan and Deniz Ozgye Aytac, "Adaptive Reuse As A Strategy Toward Urban Resilience", *European Journal Of Sustainable Development* 5, 4, 523-532, no. 2239-5938 (2016): 523-532.

⁸ Stewart Brand, *How Building's Learn: What Happens After They're Built*, 1st ed., 2010.

⁹ Brand, *How Building's Learn: What Happens After They're Built*, 2010.

¹⁰ Selen Durak, Tulin Vural Arslan and Deniz Ozgye Aytac, "Adaptive Reuse As A Strategy Toward Urban Resilience", *European Journal Of Sustainable Development* 5, 4, 523-532, no. 2239-5938 (2016): 523-532.



26 | Trongate, Glasgow,
1970, 2017.

It follows therefore that, different methods of adaptation either use the existing building shell, whole entity, semi-ruin, fragments, relics, or groups and adapt the programme to provide for the 'quotidian spatial needs of society'.¹¹ By preserving some of the existing building elements, remnants of cultural and historic importance can be imbued with a new found importance for citizens. Their defining characteristics hold their sense of place and identity, layering new and old buildings in areas together, to encourage diverse areas to develop. Therefore adaptive reuse is responding and delivering to multiple domains showing that by applying physical resilient approach, social, environmental and economic resilience can become manifest.

As established, Glasgow and Pittsburgh's key aim was to achieve 'social stability'.¹² In an essay from the Preservation Leadership Forum, it was stated that the reuse of the existing building stock can 'improve mental health by bolstering stability and belonging'.¹³ Social wellbeing comes in many forms, and this statement refers to the sentiment that the physical appearance of older buildings can encourage an emotional metaphysical connection between people, communities and place. Older buildings bring with them a past history to which individuals can relate. This introduces the idea of 'Collective memory', which refers to a shared experience between individuals, uniting different types of people in the present through past connotations. Furthermore, Wolf Kanstenier states that a collective setting can only occur within a '*framework of contemporary interests*'.¹⁴ These opinions tie in with Jacobs' philosophy of retaining a '*sense of place*', believing that the emotional experience of sharing similar heritage roots can have a powerful impact on how a sense of community can be created, thus establishing 'place' as inclusive. However, as a collective setting is arguably not always achieved due to the diversity of most contemporary cities, what becomes more pertinent is how buildings with a historic value instill a physical community spirit.

¹¹ Liliane Wong, *Adaptive Reuse: Extending The Lives Of Buildings* (Switzerland: Birkhauser, 2016), 6.

¹² Bethany Houlihan et al., *Resilient Cities [Draft]*, 1st ed. (Glasgow, 2017), 29-35.

¹³ 'Shifting The Paradigm From Demolition To Reuse: New Tools - Preservation Leadership Forum - A Program Of The National Trust For Historic Preservation' (Forum.savingplaces.org, 2017) <<http://forum.savingplaces.org/blogs/special-contributor/2017/02/16/shifting-the-paradigm-from-demolition-to-reuse-new-tools>> accessed 14 April 2017.

¹⁴ Wolf Kanstenier, "Finding Meaning In Memory: A Methodological Critique Of Collective Memory Studies", *History And Theory* 41, no. 2 (2002): 179-197, doi:10.1111/0018-2656.00198.

This is achieved through the design process of adaptive reuse and the maintenance that follows. As adaptive reuse tends to involve collaborative planning with public participation, the process of design becomes more community orientated and place driven as a singular vision is diluted through multiple interests. 'Place-making' has become a main driver for urban regeneration strategies, facilitating creative patterns of use to respect the physical, cultural and social identities that define a place and support its ongoing evolution.¹⁵ Therefore, as public participation has integrated into the planning system because of the value historic buildings can possess, it is clear that adaptive reuse is socially inclusive, with its power to connect. If they are able to involve the community through participatory conservation and reuse, then the additional pride that follows place-based solutions becomes a powerful voice in regaining community control. Jacobs argued that: 'Cities have the capability of providing something for everybody only because, and only when, they are created by everybody'.¹⁶ The publicly owned heritage sites dissolve divisive barriers, prevalent in privately owned land through the physical and emotional social attachments they can stir.

Furthermore, safety and social wellbeing is increased from inhabiting old abandoned buildings through crime reduction and the attraction of well cared for surroundings. 'Broken window theory' is a criminology theory devised in 1982 to describe the effects that vandalised urban environments can have on encouraging a disregard towards these places. In turn, social problems can become unmanageable and infectious. Glasgow and Pittsburgh have both initiated strategies to reduce crime through reuse which relates to Jane Jacobs' principles of ensuring 'eyes on the street', to encourage the safer management of neighbourhoods.¹⁷

The level of attraction to an area is dependent on many things, however what the Green Preservation Lab aimed to analyse was whether Jacobs' ideas of '*older is better*' can be seen as true.¹⁸ Their findings revealed the higher the median age of buildings, the higher the density and diversity of

¹⁵ Project Spaces, "What Is Placemaking? - Project For Public Spaces", *Project For Public Spaces*, 2017, https://www.pps.org/reference/what_is_placemaking/.

¹⁶ Jane M. Jacobs, *Death And Life Of The Great American Cities*, 1st ed. (Random House, 1961), 238.

¹⁷ Jacobs, *Death And Life Of The Great American Cities*.

¹⁸ Stephanie Meeks and Kevin Murphy, *The Past And Future City*, 1st ed., 2016.

people living and working within this area.¹⁹ This can be a combination of many factors, but the supplying of the demand driven economy cannot be ignored. As Klosterman states, the market economy exists to 'supply those goods and services which society wants.'²⁰ As the older historic buildings tend to be located in the city centre, they have become prime locations to live and work. The demand of inner city living has grown, encouraged by the close proximity of local amenities, work, entertainment and residential use to one another. Easier mobility and health benefits through vehicle reduction is improving the social and urban fabric of cities. The understanding of what communities want, to live and work in parallel with one another, to reduce commuting time, sustains a more vibrant way of living. Further data collected from the Green Preservation Lab found that there were 33% more jobs in new businesses in older neighbourhoods. This reveals how affordability in adaptive reuse can support small businesses to grow.²¹ The difficulty here is in the management of rates and controlling affordable assets once successful. Some authors consider that gentrification is an inevitable outcome of revitalisation of historic urban areas that have deteriorated and experienced obsolescence.²² Therefore, implementing strategies that protect community diversity in the population is key.

Permanent attraction relies on the 'liveability' of areas, which can be a common link to resilience and understanding what the attraction of an area is and can help to stabilise the economy. Equally, this applies to temporary visitors: the tourist economy. As both rely on the image of the city as the pull factor and for most post-industrial cities, the play of on the 'image of the post-industrial' through retaining historic buildings has witnessed a shift from industrial to cultural.²³ Although this new found impetus in the urban environment capitalises on the image which could question authenticity of place, it also suggests that if communities are supported in the economic marketing of an area, then resilience can be achieved for both the citizen and the city.

¹⁹ Meeks and Murphy, *The Past And Future City*.

²⁰ R. E. Klosterman, "Arguments For And Against Planning Formal Governmental Efforts At The Local And Regional Level; Western Democracies", *Town Planning Review*, 1985.

²¹ Preservation Green Lab, *Older, Smaller, Better.*, Measuring How The Character Of Buildings And Blocks Influences Urban Vitality, 2014.

²² Tim Heath, Taner Oc and Steve Tiesdell, *Revitalising Historic Urban Quarters*, 1st ed. (Hoboken: Taylor and Francis, 2013), 204.

²³ Louise C Johnson, *Cultural Capitals*, 1st ed. (London: Routledge, 2016).

Further economic benefits are also evident in reduction of construction costs due to the resilience of such structures as well as the stabilisation of the construction economy. In the smaller, older, better campaign, it highlighted that historic rehabilitation created 50% more jobs than new construction in the past three years.²⁴ As the precarious financial stability has been highlighted as a chronic stress within resilient strategies, it is clear that by encouraging alternative modes to new construction, a contribution can be made to the stabilization of the economy. Continuous redevelopment results in a staggered growth of urban regeneration through adaptation. This has been highlighted as a solution in 'Creating Resilient Places', as they believe when there is economic growth of an area, governments have adopted even more aggressive growth strategies without due regard for the place, culture and identity or indeed the environmental consequences.²⁵ By maintaining steady development, neighbourhoods can be protected from displacement and financial instability.

It is evident that adaptive reuse is supportive of resilience as a planning principle. The social dimension of redevelopment is maintained and community cohesion and participation in planning is encouraged, supported by a stabilised local economy.

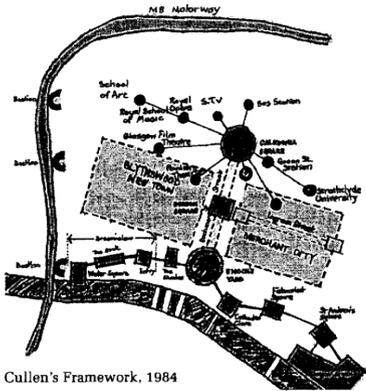
²⁴ National Trust of Historic Preservation, *Atlas Of Reurbanism, Buildings And Blocks In American Cities* (Preservation Green Lab, 2016),

<http://forum.savingplaces.org/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=4219579bfd10-8cea-1fd1-c8763bb07d81&forceDialog=0>.

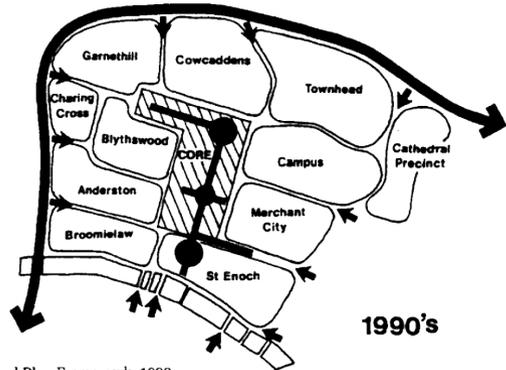
²⁵ Centre for Local Economic Strategies, *Productive local Economies: Creating Resilient Places*, 2010, <https://cles.org.uk/wp-content/uploads/2016/10/Resilienceforweb1.pdf>.



27 | Station Square,
Pittsburgh, 1976, 2015

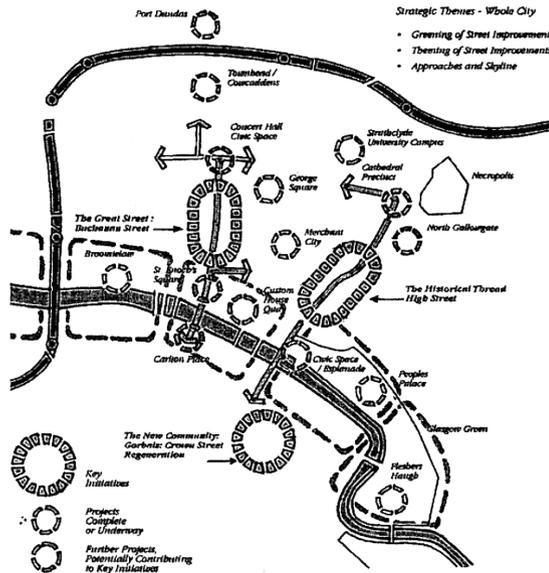


Cullen's Framework, 1984



Local Plan Framework, 1990

1990's



Gillespies' Framework, 1990 and 1995

- 28 | Top left: Gordon Cullen Plan, 1984.
 Top right: Local Plan Framework, 1990
 Bottom: Gillespies' Framework, 1990 and 1995

ADAPTIVE REUSE IN GLASGOW AND PITTSBURGH

Both Glasgow and Pittsburgh, in moving from wholesale demolition to reuse, have exhibited an interest in resilience. A critical planning approach and strong leadership had to stop Glasgow and Pittsburgh from urban shrinkage, poverty and dereliction and work towards economic and social recovery and eventual prosperity. Pittsburgh's top-down 'corporate orientated' planning approach 'Renaissance 1', began in 1946 and saw demolishing neighbourhoods and focusing on its Downtown area as a way of achieving this.²⁶ The strategy razed around 4000 buildings in the city which displaced some of its communities and lost key heritage assets.²⁷ Focus on turning the Golden Triangle, its central area where its three rivers met, into the main business and retail area was the economic development strategy undertaken.²⁸ What this produced was an area that lacked diversity and relied on a strong economy to sustain itself, weakening its long term resiliency. Glasgow similarly tackled poverty and public health through the erasure of tenement housing in the 1950's. New road infrastructure caused further disruption of communities and city fragmentation due to demolition. The issues of modernist city planning visions in Glasgow and Pittsburgh were coming to light, causing a policy shift in the 1970's towards the rehabilitation of existing buildings and a value in high quality urban design.²⁹ Both cities implemented 'reuse' as a planning strategy during de-industrialisation, but differed in their locational focus causing different results and other forces to intervene.

Glasgow's Action Plan in 1985 saw urban design as a key element in wider regeneration by concentrating the essence of the city within a core axis - the strengthened core would be the City's catalyst.³⁰ Architect Gordon Cullen

²⁶ Tracy Neuman, "Retrenchment And Renaissance In The 1970'S", *Journal Of Urban History*, 2010, 39-43, <http://journals.sagepub.com/doi/pdf/10.1177/0096144214551733>.

²⁷ Roberta Gratz, "Making Pittsburgh New By Keeping It Old", *Citylab*, 2017, <http://www.citylab.com/design/2011/10/making-new-by-making-old/342/>.

²⁸ 100 Resilient Cities, *Resilient Pittsburgh* (Pittsburgh, 2016), http://apps.pittsburghpa.gov/cis/PRA2016_executive_summary.pdf.

²⁹ John Punter, *Urban Design And The British Urban Renaissance*, 1st ed. (London: Routledge, 2010), 263.

³⁰ Clara Greed, *Introducing Urban Design: Interventions And Responses*, 1st ed. ([Place of publication not identified]: Routledge, 2016), 57.

envisaged an 'idyllic' top down plan, which was implemented through Gillespie's consultancy (1990) and given further robustness through the conception of the Strategic Development Agency in 1997.³¹ The plan had a strong vision for main areas of Glasgow by enhancing their overall character and function within the city. The plan sought to improve street connections, retain a historical thread throughout the city, create a new neighbourhood in the Gorbals and a 'string of pearls' that led towards the River Clyde, in an attempt to link the industrial area with new activity.³² Greed stated that the plan looked at the city centre, 'not as a collection of land uses, but rather as a set of meanings - depending on who the user was - and as a set of smaller character areas'.³³ Therefore the plan ultimately focused on urban design rather than individual architectural elements, seeing areas in the city as connective points that understood how they would be inhabited.

"Cities exist for citizens, and if they don't work for citizens, they die...They die through lack of usefulness" ³⁴

Connection and consideration of the inhabitant also echoes Geddes values on the social composition of cities, based on a historical narrative that would regenerate the city. The strength in this plan is how it defines a strategy of rehabilitation of the existing fabric within a framework that places; connectivity, animation, density and viability as key factors in supporting the transition from abandoned to occupied.

This was achieved by providing individual frameworks for key areas such as The Merchant City Policy and Development Framework, which examined and respected factors such as the historic fabric, pedestrian routes, neighbourhood and land use in greater depth.³⁵ The strong spatial and design framework helped to control and manage urban development throughout this period of transition. This created places that allowed its arts and cultural assets to flourish, ultimately helping regeneration to occur. 'Place-making' - referring to both the direct designing of the built environment and the governance in the decision environment was further achieved through the

³¹ Clara Greed, *Introducing Urban Design: Interventions And Responses*, 1st ed. Routledge, 1998), 58-65.

³² Punter, *Urban Design And The British Urban Renaissance*, 265.

³³ Greed, *Introducing Urban Design: Interventions And Responses*, 58-65.

³⁴ Cedric Price et al., *Re: CP*, 1st ed. (Basel: Birkhauser, 2003), 60.

³⁵ Greed, *Introducing Urban Design: Interventions And Responses*, 58-65.

mergence of the property and planning department within the one council.³⁶ By creating a more collaborative method of design development, the cities existing buildings could be observed through different lenses and worked on all levels of design. Not only in how their physical appearance contributed economically, but also how their purpose sits within a socio-spatial structure for emerging neighbourhoods. The sustainable redevelopment of Glasgow's city centre from 1985 supported a new direction for Glasgow's post-industrial economy and society. The gradual regrowth through strong urban policy used efficient resourcing of its existing buildings, diverse and mixed use areas and connections as a way of enhancing its urban identity, where new communities and neighbourhoods can develop.

Similarly, Pittsburgh's urban regeneration strategy in 1985 'Strategy 21', focused on reuse of its industrial buildings, located in large industrial sites along its three rivers and in the Strip District - a former warehouse area and redevelopment of its airport.³⁷ The strategy can be commended on two strands - for its focus on delivering policies that exploited its existing resources to house a new economic direction. The city transformed from steel production to technology innovation and educational development, helping communities to rehabilitate in the economy and to attract new inhabitants to provide economic stability.³⁸ The strategy focused on studies for the expansive industrial areas and future funding proposals, which was then supported in the second regional planning in 1993.³⁹ This allowed for gap financial loans from the Strategic Investment Fund in 1996, to help the emerging industries to slot into the existing building infrastructure in a sensitive and sustainable way.⁴⁰ However, initially this was only selective to large scale enterprise companies which meant that there wasn't an initial plan to support residential neighbourhoods that were in decline as well as smaller business reuse in areas that suffering from dereliction. Although focus on industrial areas was a logical and important emergency response, it meant that it lacked a vision for the whole city. By implementing strategies in areas, which focused on a different economic activity, areas can become isolated

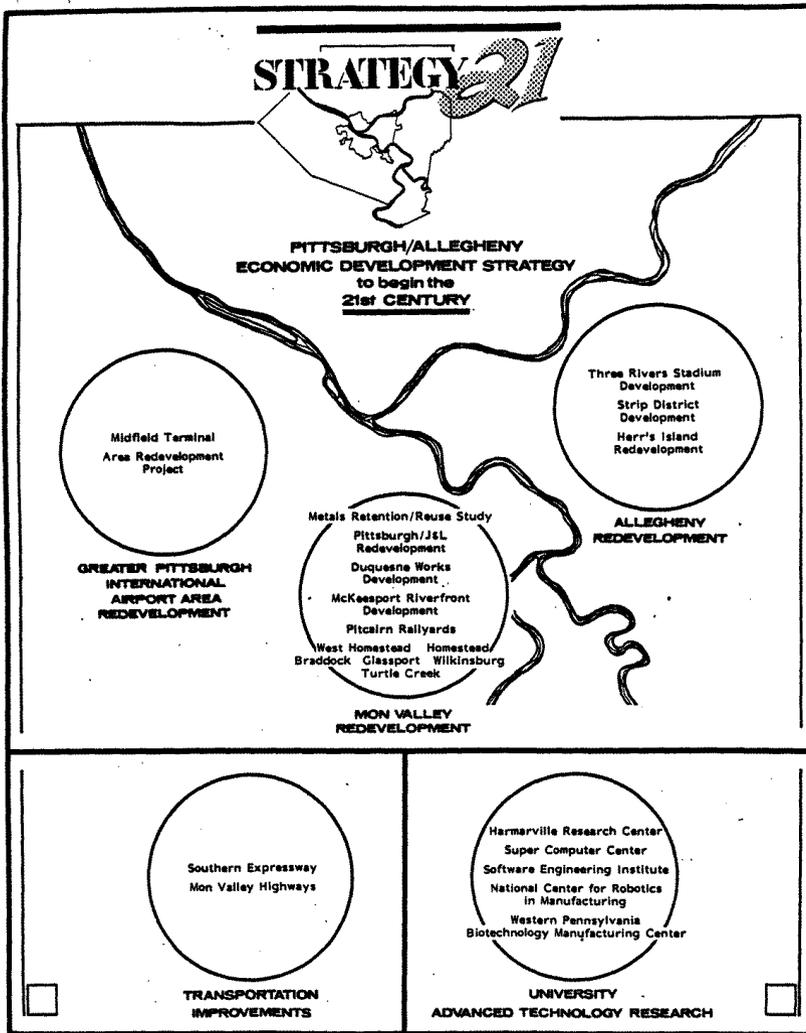
³⁶ Punter, *Urban Design And The British Urban Renaissance*, 9.

³⁷ The City of Pittsburgh, *Strategy 21*, Economic Development Strategy, 1985, <http://www.briem.com/files/strategy21.pdf>.

³⁸ Donald K Carter, *Remaking PostIndustrial Cities*, 1st ed. (London [etc.]: Routledge, Taylor & Francis, 2016), 115.

³⁹ Carter, *Remaking PostIndustrial Cities*, 115-116.

⁴⁰ Carter, *Remaking PostIndustrial Cities*, 115-116.



29 Strategy 21 Spatial Plan,
1985.

in their new use. This could be seen to be one of the reasons why Pittsburgh wanted to address regional fragmentation in their current resilient strategy.⁴¹

However, there was also an environmental focus during this period to clean the polluted area, and one of the strategies to achieve this was to create public parks and an attractive public realm.⁴² Pittsburgh suffered the flight of the middle class from the city centre, similar to Glasgow, so the investment in the quality of life from strong governance which focused on the function and character of industrial areas and green infrastructure in Pittsburgh, set precedence for future planning development. Richard Florida, an urbanist who studied in Pittsburgh, stated that the '*creative class gravitate toward places of authenticity with walkable neighbourhoods, recreational amenities and diversity*', therefore by placing 'people' at the heart of the economic strategy, the character is enriched.⁴³ However, this was not achieved without external sources of support.

It is evident in Pittsburgh and Glasgow's transition, that the rehabilitation of existing buildings would not have occurred without public and private partnerships: private investment became the foothold to retaining Glasgow and Pittsburgh's historic identity in areas. According to Josef W. Konvitz (2001), he states that social disparities and population increase are narrowing in cities thanks to public and private partnerships, as the quality of design is always a high variable.⁴⁴ This type of joint financing has also become a balancing act, between the market-driven private sector and the under-funded public sector.

In Pittsburgh, as Strategy 21 focused on the revival of certain areas, public and private investment was one of the main reasons how Pittsburgh's Downtown area to survive through financial stresses and develop into an area that provided entertainment for a new culture that was emerging. Private investment to restore historic buildings was initially encouraged through a

⁴¹ 100 Resilient Cities, *Resilient Pittsburgh*.

⁴² The City of Pittsburgh, *Strategy 21*, Economic Development Strategy, 1985.

⁴³ Richard Florida, "Cities And The Creative Class", 2004, 3-19, <http://creativeclass.com/rfcgdb/articles/4%20Cities%20and%20the%20Creative%20Class.pdf>.

⁴⁴ Josef W. Konvitz (2001: "Jobs for People and Places", Euro-Commentary. European Urban and Regional Studies 8 in Urban Renaissance: Glasgow: Lessons For Innovation And Implementation, 1st ed. (OECD Publications Centre, 2002).

20% tax incentive as part of the Federal Historic Tax Credit Programme.⁴⁵ This led to a joint investment which has allowed entire neighbourhoods and districts to develop through reuse strategies. With the financial investment from Pittsburgh's Cultural Trust, a district in the heart of Downtown was transformed from an unsafe territory into a public destination that celebrates the arts.⁴⁶ Reuse and revival has been able to occur through private investment and according to the most recent Downtown Plan (2012-2016), Downtown Pittsburgh was able to restore legacy buildings '*that celebrate the past, and house cultural amenities that enriches lives*' as a result of this.⁴⁷ Historian Donald Carter further describes Public-private investment in Pittsburgh to have been exemplary in 'bringing people together for the greater good of the region'.⁴⁸ Inclusive collaboration has shaped the built environment, displaying a resilient planning principle for ongoing development. However, there can be economic problems with this type of venture that encourages regeneration to be implemented over a long period of time. Public sector investment is put at risk within a precarious economic climate. Securing a partnership that doesn't rely on future forecasting, but acknowledges contingency in economic planning, can result in a robust resilient strategy for reuse in neighbourhoods.

Similarly, Glasgow's Merchant City development also occurred through public-private partnerships. Punter argues that during the period in the 1980's, private investment played a significant role in the regeneration of its city centre.⁴⁹ Through coalition of public agencies responsible for private investment and Glasgow City Council, 'place-making' was able to play a key role and its success can be indicated in 1999, when Glasgow was designated as UK City of Architecture and Design.⁵⁰ The city of culture was thus established.

⁴⁵ "Tax Incentives—Technical Preservation Services, National Park Service", *Nps.Gov*, 2017, <https://www.nps.gov/tps/tax-incentives.htm>.

⁴⁶ John Tierney, "How The Arts Drove Pittsburgh's Revitalization", *The Atlantic*, 2017, <https://www.theatlantic.com/business/archive/2014/12/how-the-cultural-arts-drove-pittsburghs-revitalization/383627/>.

⁴⁷ Downtown Pittsburgh Partnership, *Downtown Pittsburgh Strategic Plan* (Pittsburgh, 2016), <http://downtownpittsburgh.com/wp-content/uploads/2016/07/StrategicPlan.pdf>, 5,

⁴⁸ Carter, *Remaking Post-Industrial Cities*, 115-117.

⁴⁹ Punter, *Urban Design And The British Urban Renaissance*, 95-110.

⁵⁰ Punter, *Urban Design And The British Urban Renaissance*, 95-110.

Glasgow and Pittsburgh both benefitted from other factors to encourage the reuse of its existing buildings. In Pittsburgh, the current Downtown Plan also praises the Pittsburgh History and Landmarks Foundation (PHLF) as a reason for the mix of old against new buildings within the city core and its neighbouring districts. Pivotal to the influence private preservation organisations have had in Pittsburgh was displayed in 1999, when PHLF saved an area in the Downtown of erasure. The organisation brought together business communities and the general public to fight against the mayor's Downtown Vision Plan to demolish sixty four buildings in the Fifth Avenue-Forbes Avenue area which they re-adapted for new uses.⁵¹ They also managed to encourage communities to stay in their historic neighbourhoods that were physically deteriorating due to lack of public funds.⁵² This encouragement has allowed revitalisation to occur, communities and neighbourhoods to survive because of the protection of historic assets.

In Glasgow, 'time' as a contributory factor in adaptive reuse projects, and becomes crucial to the saving and redevelopment of older buildings. When older buildings are purchased but left undeveloped, they are at risk of disrepair and removal. The Buildings at Risk Register, set up by the Scottish Civic Trust has become a powerful tool in restoring Glasgow. Their main objectives are to raise awareness of buildings at risk by identifying, recording and monitoring historic buildings, by marrying redevelopers and restorers and by providing a national statistical database.⁵³ By highlighting buildings at risk and providing examples of successful reuse projects, it not only generates a discussion to a wider audience, but can attract investors to redevelop in a supportive environment with access to expert knowledge. This can reduce the time a building is left vacant. Additionally, the government has supported charities such as the Glasgow Heritage Trust and the Glasgow Building Preservation Trust through lottery funding, further supported by Glasgow City Council. Along with general aims of encouraging and carrying out rehabilitation projects through grants, their annual doors open festival helps to increase awareness and participation by allowing access to Glasgow's

⁵¹ "Downtown - Pittsburgh History & Landmarks Foundation", *Pittsburgh History & Landmarks Foundation*, 2017, <http://phlf.org/preservation/neighborhoods/downtown/>.

⁵² Roberta Gratz, "Making Pittsburgh New By Keeping It Old", *Citylab*, 2017, <http://www.citylab.com/design/2011/10/making-new-by-making-old/342/>.

⁵³ Scottish Civic Trust, *New Uses For Old Buildings*, accessed 10 October 2016, www.scottishcivictrust.org.uk.

historic buildings and celebrating them.⁵⁴ Furthermore, the Scottish Government introduced the Town Centre Empty Homes Fund in 2015, aiming to convert disused commercial premises into residential properties, of which 37 properties received funding for so far.⁵⁵

However, vacant properties are still a chronic stress in both cities. Statistics from The Vacant Property Working Group (VPWG) stated that in 2010, 20,000 properties in Pittsburgh were still lying vacant compared to data from Glasgow's Housing Strategy, outlining 1857 empty properties in Glasgow in 2016.⁵⁶⁵⁷ Although the statistics in Glasgow exclude public buildings, the comparison reveals the heightened problem in Pittsburgh. Nevertheless, actions against blighted properties in Pittsburgh have been shown through the set up of a land banking system in 2014 which controls and manages the land acquisition process, resulting in a quicker and more accessible transition process.⁵⁸ Regaining control of vacant properties in Pittsburgh has been paramount in securing safer and more attractive neighbourhoods for citizens, whilst providing a resourceful and robust system for redevelopment.

Although non-profit organisations have contributed to the promotion of reuse development, there are still obstacles in the legal and planning policy framework that make it difficult to adapt. In Pittsburgh, the Vacant Property Group has helped to address title problems, by paying for the clearing of the title. This has allowed community development corporations to help mend the social fabric, creating safer places for individuals to live and work. As demolition has been stated by the Vacant Property Working Group as a common municipal response, community development planning intervention shows progressive steps towards creating a smoother transition for developers to reuse and homeowners to purchase, ultimately creating a more sustainable community. However strict planning policy guidelines make

⁵⁴ "Glasgow Building Preservation Trust", *Glasgow Building Preservation Trust*, 2017, <http://gbpt.org>.

⁵⁵ Glasgow City Council, *Empty Homes Factsheet*, Glasgow Housing Strategy, 2016, <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=34747&p=0>.

⁵⁶ "Vacant Property Working Group (VPWG) | PCRG", *Pcrg.Org*, 2017, <http://www.pcrg.org/programs/vacantproperty-working-groupvpwg/>.

⁵⁷ Glasgow City Council, *Empty Homes Factsheet*, Glasgow Housing Strategy, 2016.

⁵⁸ "Vacant Property Working Group (VPWG) | PCRG", *Pcrg.Org*, 2017, <http://www.pcrg.org/programs/vacantproperty-working-groupvpwg/>.

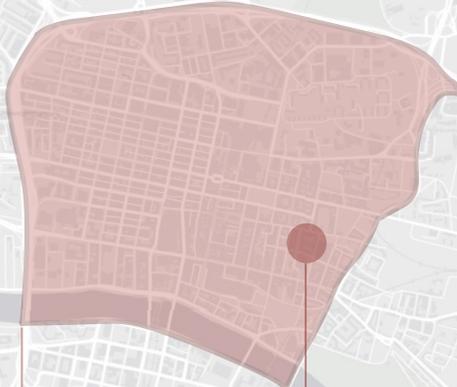
converting into housing arduous to achieve which has resulted in the decay of former commercial buildings in Downtown Pittsburgh.

According to Architecture and Design Scotland, 'Growth' in economic policy is also place-making policy and therefore social policy.⁵⁹ Glasgow and Pittsburgh's city strategies following the industrial decline exhibit a robust framework that has allowed each city to recover and emerge in a new economic direction as a city of culture and a city of technology innovation. Their strategies provided a strong urban design agenda that built on establishing social and cultural relationships to 'place' through building reuse which were strengthened by the support of other organisations.



30 College Street,
Glasgow, 1973.

⁵⁹ "The Value Of Resilient Places - A&DS", A&DS, 2017, <http://www.ads.org.uk/thevalue-of-resilientplaces/>.



Ingram Square

GLASGOW CITY CENTRE AND
MERCHANT CITY NEIGHBOURHOOD

CASE STUDY: GLASGOW'S INGRAM SQUARE + PITTSBURGH'S MARKET SQUARE PLACE

The following case studies will focus on the central areas of Glasgow and Pittsburgh and how adaptive reuse was implemented and its impact on social, economic and environmental factors in the city. The case studies in discussion represent pivotal moments in reintroducing a residential community into central areas through reuse, shifting from urban dereliction to social densification. Located in Glasgow's Merchant City, the Ingram Square development occurred in 1982-9 as part of Glasgow's Action Plan in 1985. Pittsburgh's case study is located in Market Square Place in its Downtown area and was completed in 2008.⁶⁰ The different city planning approaches adopted in the 1980's provides two different spatial development contexts to analyse the potential of adaptive reuse in. The analysis aims to understand how resilient both adaptive reuse case studies were in terms of the physical reuse of buildings, community support and how the mixed use neighbourhood has impacted the city's resilience as a whole. Using a framework which breaks the intervention down into 'layers', influenced by Stuart Brand's 'shearing layers' concept; the material and site reuse, programme, social and community aspects, environmental and city wide impact will be analysed.

GLASGOW'S MERCHANT CITY - INGRAM SQUARE

An area of historic affluence, the existing merchant community built warehouses, trades houses and chamber houses in the 1800's to house the commerce and industries that brought economic and social wealth to the central core of city life.⁶¹ However, as the 1970's saw dereliction, vacancy and decline, some artist communities persisted by occupying some affordable ground floor retail units in the area, and converting the Tron

⁶⁰ "Market Square Place - Strada - A Cross-Disciplinary Design Firm", Strada - A Cross-Disciplinary Design Firm, 2017, <http://dev.stradallc.com/projects/market-square-place/>.

⁶¹ Punter, *Urban Design And The British Urban Renaissance*, 265.



Date 1854
Former Use J & W Campbell's Warehouse
New Use Residential
Date 1984
Architect Elder & Canon
Developer Kantel

32 'Houndstitch' Building, 2017.



33 Ingram Square Plan, 2017.

Church to a theatre, thus regaining interest amongst the dereliction.⁶² A resilient community has continued to see the areas potential and change the quality of life there through the resilience of the urban fabric.

The project included a variety of methods of rehabilitation of former industrial warehouses as well as incorporating new buildings to infill the vacant sites in the city block, demonstrating different skills in knitting old and new buildings together to repurpose a derelict part of the city. Comprising fourteen buildings, eight of which were former commercial warehouses and six new infill developments, the historic integrity of the existing merchant community is evident in the material reuse of the building envelope.⁶³

The largest former commercial building on Brunswick and Ingram Street catalysed the development; its historic significance is evident in its unique architectural detailing. Robustness in the ashlar stone facade is evident as the method of reuse only consisted of facade retention due to problems with the existing structure.⁶⁴ The other seven buildings were treated as individual buildings and converted to new uses using the existing building envelope and structure.⁶⁵ An individual identity collectively unites the past with the present through the revival of the resilient materials. Although not all buildings reused all existing materials, there is a strong achievement in reducing the carbon footprint in a time when sustainable strategies were not as prevalent in planning as they are currently. Furthermore, through the recycling of the warehouses, it instigated new construction to contribute to the completion of the block. In doing so, it respected the historic urban grid layout, which enhances the vistas and streets as a result.

The warehouse typology has proven to be flexible in its ability to adapt to suit new uses. Opportunities for ground floor retail units inhabit the area at a human scale, whilst above, the potential for high quality residential spaces could also be achieved. Large windows address all four streets and the new internal courtyards. The spacious apartments disassociated itself with Glasgow's prevalent cramped tenements, and encouraged a new style of living in the city centre for a new economy. The reinterpretation of the

⁶² Reflections on the Merchant City, Norry Wilson "Lost Glasgow editor" interview, (Glasgow, 2017).

⁶³ Heath, Taner and Tiesdell, Revitalising Historic Urban Quarters, 117-121

⁶⁴ "Glasgow Buildings - Ingram Street", [Urbanglasgow.Co.Uk](http://urbanglasgow.co.uk), 2017, <http://urbanglasgow.co.uk/viewtopic.php?t=526&start=0>.

⁶⁵ Heath, Taner and Tiesdell, Revitalising Historic Urban Quarters, 117-121

A map of Downtown Pittsburgh, 2017, showing the Greater Downtown District and Pittsburgh Downtown Neighbourhood. The map features a grid of streets and is overlaid with two semi-transparent brown rectangular boxes. The larger box on the left is labeled 'GREATER DOWNTOWN DISTRICT' and encompasses a large area of the city. The smaller box on the right is labeled 'PITTSBURGH DOWNTOWN NEIGHBOURHOOD' and covers a more specific area. A red dot is placed on the map, with a line pointing to the text 'Market Square Place'. The Ohio River and Allegheny River are shown flowing through the city. Other streets labeled include Grays Rd and Sawmill Rd.

GREATER DOWNTOWN DISTRICT

PITTSBURGH DOWNTOWN
NEIGHBOURHOOD

Market Square Place

Ohio River

Allegheny River

Nevertheless, similar problems with high value to rent or buy marginalises society into those who can afford to live there, reducing the richness a diverse area can provide to a neighbourhood in the central city. Wilson Street had managed to retain local independent shops during dereliction, but as interest grew, so did property prices, driving occupants out.⁶⁷

The Ingram Square redevelopment impacted the future development of the city whilst nurturing a growing residential community. The success in the project is how it has been transformed from a derelict and unsafe part of the city into an area that drives different people to visit, work and live. It instigated surrounding reuse of existing buildings in the area, many of which provided more residential housing for a community to grow. Further regeneration in neighbourhoods such as Dennistoun and the Gorbals has occurred from strengthening the core. Many public buildings became cultural anchors in Merchant City, hosting Glasgow's rich arts and culture to attract visitors as well as providing recreational amenities for the new 'knowledge' economy.⁶⁸ The population growth in the Merchant City and the city centre has occurred through gradual redevelopment, with some brownfield sites still surrounding the area, yet plans for more mixed use housing have commenced.⁶⁹ The power of reuse towards resilience is clear. Merchant City was granted the Urbanism award in 2006, under the 'neighbourhood' category.⁷⁰ A current vibrant community comprising residential, office, commercial, retail and entertainment uses now exists. The morphology used in the redevelopment of commercial warehouses into mixed uses in the Ingram Square redevelopment in 1982, has become a ruling factor in the way which future development can transform derelict buildings.

⁶⁷ Reflections on the Merchant City, Norry Wilson "Lost Glasgow editor" interview, (Glasgow, 2017).

⁶⁸ note on what a knowledge economy is

⁶⁹ Richard Architects, "Richard Murphy Architects: Candleriggs Quarter, Glasgow", *Richardmurphyarchitects.Com*, 2017, <http://www.richardmurphyarchitects.com/viewItem.php?id=7543>.

⁷⁰ "Merchant City | The Academy Of Urbanism", *Academyofurbanism.Org.Uk*, 2017, <https://www.academyofurbanism.org.uk/merchantcity/>.



35 Market Square Plan,
2016.



Date 1906
Former Use G + C Murphy Store
New Use Retail/Residential
Date 2008
Architect Strada
Developer Milcaft Industries

36 Market Square Place,
2016.

PITTSBURGH'S DOWNTOWN - MARKET SQUARE PLACE

Market Square Place has historically been a thriving hub of commerce and activity since the late 1700's to early 20th century, but was marred with decline and disinvestment by the 1990's.⁷¹ As 'Strategy 21' focused on other industrial areas, 'stress points in a vulnerable retail corridor, an underachieving entertainment sector, a small residential population and limited access points' were beginning to show in 1998.⁷² This was highlighted in the 1998 Downtown Planning proposals as reasons for demolishing almost the entire neighbourhood of historic buildings for new development.⁷³ An intervention from public participation and a Preservation Community stopped this from happening, allowing the Market Square development in 2008 to achieve building restoration and conversion. Developed as part an appeal to reclaim public space for residents and visitors in 1997, the project places 'community' as the main driver to revive the Downtown district.⁷⁴

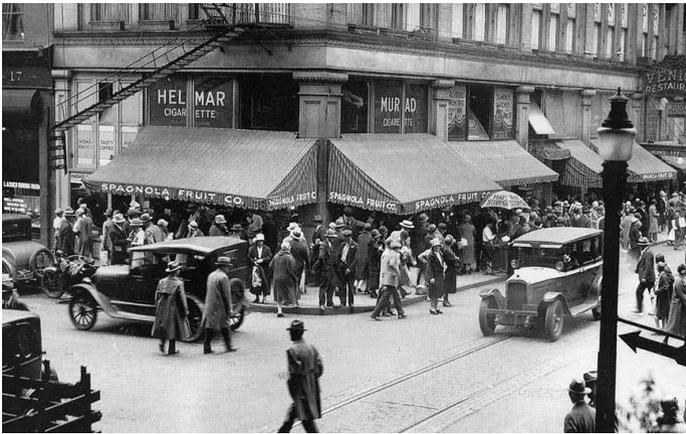
Greater Downtown Pittsburgh has a population of around 14,000 people.⁷⁵ However, in the Market Square Place area code, the population density is around 0.001 person per metre squared, lower than any other area of Downtown.⁷⁶ As the area has developed into a business and retail district, with the Cultural District north of the site, the area has lacked a residential community in the area. However, as demand for central living in Downtown has increased, this places demand on vacant properties to be rehabilitated.

The physical methods of reuse first removed existing layers to uncover the existing historic facade details. The project restores the historic building

⁷¹ "Market Square Place - Strada - A Cross-Disciplinary Design Firm", Strada - A Cross-Disciplinary Design Firm, 2017, <http://dev.stradallc.com/projects/market-square-place/>.

⁷² City of Pittsburgh, *Pittsburgh Downtown Plan*, A Blueprint For The 21st Century (Pittsburgh, 1998), <http://www.briem.com/files/DowntownPlanDoc.pdf>, 3.

⁷³ "Home - Pittsburgh History & Landmarks Foundation", Pittsburgh History & Landmarks Foundation, 2017, <http://phlf.org>.



37 | Ingram Square (left), 1870.
Market Square (right), 1928.

value.⁸¹ The large commercial space provision made the whole redevelopment feasible, revealing a strong economic model for mixed use conversion to encourage diversity. Furthermore, restoration of ground floor retail units along Forbes Avenue has revived a connection route in the city to the Cultural District. With the additional adaptation of a former bank building into a cinema along this route, a more cohesive organisation of programmes in the city can be achieved. By opening up gateways to encourage a network of organisations, the future existence of smaller businesses can be strengthened. According to Jane Jacobs 'you can't rely on bringing people Downtown, you have to put them there.'⁸² By encouraging connectivity and social activity through reuse, nearby areas suffering from disuse can benefit and be revived.

Social and community considerations are exhibited in the human scale and tight cluster of the buildings. This can create a sense of community for the residents as the shared spaces are scaled to suit the occupant ratio, thus creating domestic pockets of space in a high rise office use area of the city. This is evident in the private courtyard space, onto which the buildings look. The mixed use programme encourages continual occupancy, which Jane Jacobs stated it achieves two things: safer neighbourhoods and a vibrant area throughout all times of the day.⁸³ This not only strengthens a growing residential community in the area, but benefits city users a whole. As the adjacent public square requires continual occupancy to animate the space and encourage its use, this adaptive reuse strategy can be seen as a mechanism for cultivating social life in the city.

However, there are limitations within the population density and diversity of its new use. As the population density is already low in the area, establishing a stable residential community will require a higher number of residential units throughout the area to make it sustainable. There are currently 996 households within the area code and as there has been a focus on building conversion along the Fifth and Forbes Avenue streets, a larger community could develop.⁸⁴ Limitations in social diversity due to the absence of

⁸¹ Pittsburgh History & Landmarks Foundation, Fifth And Forbes Walking Tour (Pittsburgh: Pittsburgh History & Landmarks Foundation, 2015).

⁸² Jane M. Jacobs, *Death And Life Of The Great American Cities*, 1st ed. (Random House, 1961).

⁸³ Jacobs, *Death And Life Of The Great American Cities*, 1961.

⁸⁴ Pittsburgh, Pennsylvania (PA) Profile: Population, Maps, Real Estate, Averages, Homes, Statistics, Relocation, Travel, Jobs, Hospitals, Schools, Crime, Moving, Houses, News, Sex

affordable apartment units, could increase a social divide in this area of the city. Income Household data analysis reveals substantially high household incomes are located in the Cultural District next to the site.⁸⁵ This is an area that has a high number of historic buildings adapted for new uses. As demand for inner city living grows, sustainable growth can be helped through the encouragement of social diversity in adaptive reuse projects.

The Market Square redevelopment is recognised as a significant contribution to Downtown Pittsburgh. The project complimented the redevelopment of a new public asset, that could support different cultural activities to appeal to local and regional groups of people. The buildings create a character for the market square that has made reviving its purpose as a market all the more powerful. As other buildings around the square were also adapted to new uses, the combination has enhanced the entire Downtown area of Pittsburgh, encouraging reuse for mixed use elsewhere. The project has opened up the potential on how the area can support a community, and has contributed to the new Downtown masterplan in development. Although the project is still in its infancy to determine a resolute city-wide impact, it has cemented the achievements of collaboration with a preservation community in the heart of the city. It has connected its buildings to the urban landscape again and focused on the quality of urban living and all the amenities required.

An analysis into both specific case studies has demonstrated the power of reuse. Highly commended for its environmental stance on urban design, the Market Square Place project was more energy efficient than Glasgow's Ingram Square, which is a reflection on the different time periods but also relates to Pittsburgh's stronger aspirations for sustainability, when comparing resilient strategies. However, a success that is clear in both, is the benefit of valuing the social history of a place. This acknowledgement relinked routes through the city, thus creating social spaces that are purposeful and engaging. Although it is questionable if Market Square Place will succeed in attracting a larger residential community, the projects provide evidence that people do *'gravitate toward places of authenticity with walkable*

Offenders", City-Data.Com, 2017, <http://www.city-data.com/city/Pittsburgh-Pennsylvania.html>.

⁸⁵ ZipAtlas.com Team, "15222 Zip Code | Pittsburgh, Pennsylvania | Map & Detailed Profile | ZipAtlas", ZipAtlas.Com, 2017, <http://zipatlas.com/us/pa/pittsburgh/zip-15222.htm#industry>.

neighbourhoods, recreational amenities and diversity.⁸⁶ Designing for communities allows areas to bounce back from dereliction to urban intensification.

⁸⁶ Richard Florida, "Cities And The Creative Class", 2004, 3-19, <http://creativeclass.com/rfcgdb/articles/4%20Cities%20and%20the%20Creative%20Class.pdf>.

CONCLUSION

Resilience in city planning is a new way of doing old things, it repurposes adaptive reuse, and in doing so, it can establish communities and neighbourhoods in an environmental and culturally conscious way. Adaptive reuse values what has been carried out before - although vacant buildings represent the success and the failures of cities, they can represent what successful urban planning was and what it can turn into. Flexible, robust and able to withstand years of neglect and disinvestment, the buildings from the industrial age have proven to become intrinsic parts of cities through reuse. As Jane Jacobs stated: '*time makes the high building costs of one generation the bargains of a following generation.*'⁸⁷ With the economic and environmental concerns of 21st centuries, where stresses and shocks on the city have led to inefficient and failing systems, a resilient framework necessitates considerate and creative solutions to repurpose its buildings for society. Glasgow and Pittsburgh both implemented reuse as a resilient strategy to recover from failing industries. As Glasgow focused on strengthening its core, it displayed a strong urban design agenda and planning policy framework. It recognised the potential of its historic character by defining urban areas in the city, created connections in the city through diverse, viable, high density and animated uses which has encouraged other areas to regenerate. Pittsburgh focused on reusing its industrial buildings for a new economic activity, which allowed it to bounce back and distinguish itself as one of America's most 'liveable' cities.⁸⁸ The plan succeeded in revitalising neglected industrial neighbourhoods and attention to the public realm was evident in its green infrastructure, improving environmental issues and adding to the quality of life. However, connection between neighbourhoods was not as evident in Pittsburgh as it was in Glasgow, which is perhaps one of the reasons social and racial equity in neighbourhoods has been a stress on the city and its inhabitants. However, Pittsburgh's public and private partnerships, preservation groups and community development corporations became elemental in retaining neighbourhoods as places for communities to inhabit. The case studies showed the flexibility in former buildings to meet the demands of a new

⁸⁷ Jacobs, *Death And Life Of The Great American Cities*, 1961, 247.

⁸⁸ Franklin Toker, *Pittsburgh: An Urban Portrait* (Pittsburgh: University of Pittsburgh Press, 1994), 3-10.

society. By exploring the material and site reuse, the change of purpose, community and city wide impact, Glasgow and Pittsburgh both provided insights on how adaptive reuse has impacted a community, its environment and the city. They demonstrated similar approaches to reviving central areas in different contexts. Glasgow's Ingram Square redevelopment was successful because a mixed use residential strategy that was well connected to the rest of the city was the intention from the beginning. This has allowed a community to develop, in buildings of a similar typology, that retain the historic integrity of the area, in a safe and animated environment through continual occupancy, with mixed uses to support a life style in the city centre. It encouraged other businesses to develop, and attracted certain demographics to contribute to the future development. This has had a positive effect on the city, and has become a reaction against the Garden Suburb era, by providing a stimulus for a denser population to live centrally. In Pittsburgh, as residential and mixed use buildings were not intended from the beginning in the Market Square area and their commercial warehouses weren't utilised, there is difficulty in establishing a community as the area has already established itself as something else. Although there are recreational amenities and public spaces and the project has provided investment interest for a large masterplan of the Downtown area, the area suggests that as it is dominated by office buildings, there is little room to increase the population density to ultimately increase the diversity and animate the area. Nevertheless, the case studies in both Glasgow and Pittsburgh show that resilience and reuse are useful principles in planning for cities in the 21st Century.

CONCLUSION

Disaster usually strike without warning and that is the reason of difficulty to prepare and prevent flood among the acute short-term shocks. Flood is main disaster which damages the cities extensively. Therefore, it is necessary to have plans and policies about flood to be a resilient city.

To restore and regenerate cities from long term depression phase after World War Two, Glasgow and Pittsburgh have changed their main industry from manufactural industry to service and education industry, planning waterfront as the central axis. Although the areas along the riverside have been threatened by flood, the waterfront has been important for resilient city as it used to be.

There are effective countermeasures and prevention policies in Glasgow and Pittsburgh. The policies are supporting developers, homeowners, and residents and defending them from damage of flood. The governments are also cooperating with non-profit organizations, associations, and societies. However, it is hard to find that whether those policies reflect the regional features and characters such as weather and topography even they have different environmental conditions. In case of the Glasgow Harbour project, it is more focus on economical profits. According to Doucet (2012), the goal of this project is construction of a profitable housing development and the maximization of short-term economic returns. Pittsburgh, in common with Glasgow, has few policies without relation of local environment.

This has indicates the policies about flood for resilient city with historical background of Glasgow and Pittsburgh. It is the limitation that only two cities and few policies have been investigated. If the other cities and more policies are examined, it might be useful to formulate and apply to new policies in the future.

chapter 6



COMMUNITY RESILIENCE

As an off-shoot from the collective investigation, this chapter examines the socio-economic and social-ecological aspects of resilience. Focussing on a resourceful albeit stigmatised community, the travelling showpeople, the aim is to discover how they foster resilience despite habitually facing adversity. Through analysing the largest minority group in the East End of Glasgow,¹ the intention is to discern whether the vulnerabilities of the community manifest in the social fabric of the city or equally, if the community's resilience strengthens the city's resilience

¹ Alison Irvine, Chris Leslie and Mitch Miller, *Nothing Is Lost*, 1st ed. (Glasgow: Freight Books, 2015).

AN ANALYSIS OF THE CULTURAL HISTORY OF THE TRAVELLING SHOWPEOPLE AGAINST SOCIAL RESILIENCE CONCEPTS

"For hundreds of years Showpeople have travelled the country, providing entertainment with their rides and attractions. While this group have had a tangible influence on Scottish culture, the majority of Scottish people know very little about them."²



38 John Knox, 'Glasgow Fair'.

Travelling showpeople have been performing fairs in Glasgow since the 1800s. The evidence of which has been immortalised in a number of paintings, such as John Knox's 19th Century depiction of 'Glasgow Fair'. Showpeople's history is less documented, and as an itinerant community their lifestyle not fully accepted as the social norm, despite the shared and commemorated memories of the fairs.

² "New Display At Riverside Explores Cultural History Of Scottish Showpeople", *Glasgowlife.Org.Uk*, 2017, <http://www.glasgowlife.org.uk/news/Pages/New-Display-at-Riverside-Explores-Cultural-History-of-Scottish-Showpeople.aspx>.

Showpeople are a significant community in Glasgow, as they make up the largest population of showmen and women in all of Europe.³ Ten percent of the schoolchildren in Glasgow's East End are show children⁴ illustrating the importance of this minority group in the East End. Distinct from other travellers, Showpeople work in the business of fairs, and it is this alongside their travelling community lifestyle which forms their identity. An interviewee described the importance of differentiating between traveller groups: "we are not gypsies, they're wonderful people with a beautiful culture but we are different, no one likes being called something they're not."⁵ Showpeople are a collection of families who travel nationally, some even further afield, to hold fairs in spring and summer.

Historically, families returned only 65 days of the year to their 'winter yards',⁶ thus being described in the 19th Century as "a village on wheels."⁷ Nowadays, these families are less mobile, trading-in living in a wagon, to live in a chalet-styled house in the winter -which are moveable if needed but not mobile. It is a common belief amongst a misinformed public that travellers 'occupy' land, however their winter yards are either let from the local council or a private landlord, or increasingly are bought by someone in the community who will rent out places within the land to others in the community. There are many qualities to this community which inspires an image of resiliency -however is the culture in decline and so slowly losing the qualities which once made the community resilient?

³ "New Display At Riverside Explores Cultural History Of Scottish Showpeople", *Glasgowlife.Org.Uk*, 2017, <http://www.glasgowlife.org.uk/news/Pages/New-Display-at-Riverside-Explores-Cultural-History-of-Scottish-Showpeople.aspx>.

⁴ Mitch Miller, Showpeople's lives and history, the Commonwealth Games, and the future of the community, interview by Joyce Yazbeck, in person (Glasgow, 2017).

⁵ Candace Thomas, The Showmens Guild, the Showpeople ethnic identity and the future of the community, interview by Joyce Yazbeck, in person (Glasgow, 2017).

⁶ Mitch Miller, Showpeople's lives and history, the Commonwealth Games, and the future of the community, 2017.

⁷ *All the Fun of The Fair: A History of the British Fairground*, DVD (BBC 4, 2014).

FAMILY IS UNIVERSE

One of the most prominent aspects of resilience the people of the community retain is that of social connectedness, to the point where there is a common belief that, "We're all the one family, really. I think we're all related if you go back far enough."⁸ Genealogically, there is some truth to the statement as showpeople used to rarely marry outside the community,⁹ but moreover it portrays how akin people feel to one another. The pillars of social capital, "trust, well-developed social networks, and leadership,"¹⁰ is undoubtedly found here in the former two qualities. However, interviewing Candace Thomas who has chosen to continue with her University education rather than travel the fairs, it is evident she feels that her generation shows signs of unprecedented character decline, "there's now more than any other time before (from what I hear about the past) a lot of people my age who are just stuck."¹¹ Is this the manifestations of intergenerational inequality whereby the upcoming generation feel less well-off and have less opportunities than generations before them? The traditional social ideals of a young marriage and child-rearing on the fairs is in decline and women particularly are achieving more freedoms however at the cost of giving up the family-orientated dream of the traveller. This feeling of being "stuck" suggests a lack of social mobility in the community, which is particularly detrimental for social resilience, as it is an inability to change health status, education status or income, which makes a group of people less adaptable and resourceful.

Mitch Miller, an Artist whose work focuses on changing public opinion on showpeople and celebrating their heritage and culture, has a more optimistic view of the community. He sees the intrinsic bonds as uniquely resilient, which despite intergenerational inequalities enable the upcoming generation the ability to recover and adapt, "we as a collective are a dense network of

⁸ Frank Bruce, *Showfolk: An Oral History Of The Fairground Dynasty*, 1st ed. (Edinburgh: NMSE - Publishing Ltd, 2010).

⁹ *Ibid.*

¹⁰ Brian H. Walker and David Salt, *Resilience Thinking: Sustaining Ecosystems And People In A Changing World*, 2012, 147.

¹¹ Candace Thomas, *The Showmens Guild, the Showpeople ethnic identity and the future of the community*, 2017.

relationships, so no one can really escape that.”¹² Although in some cases people do leave the fairs industry, the interconnections of relations cannot be erased and therefore can always be relied on. As the community changes, as any resilient entity should, adjustments such as women having more freedoms, can be a double-edged sword both enhancing the rights of the women in the community but also denigrating the character of a community reliant on its family-orientated identity. Once there begins to be less marriages within the community, and more showmen and women taking up a different lifestyle to their predecessors, will the strong sense of identity wain and the shared ‘common experience’ of travelling the fairs become less of a binder? The totality of their social capital: kinship, heritage and a shared travelling lifestyle, reinforces a rare mutual support which suggests otherwise.



39 Stretford Longford Park Fair, 1951, Rowland Scott photograph, National Fairground and Circus Archive

¹² Mitch Miller, *Showpeople's lives and history, the Commonwealth Games, and the future of the community*, 2017.

BEND RATHER THAN BREAK

Showpeople's perseverance is an undeniable attribute, "we're showmen, and so we have to persevere."¹³ The very nature of showmanship is one of rivalry among friends to attract the 'punters', in order to make a living, "it is this which gives showmen and women the incentive to make their rides faster, their stalls brighter, and their shows more novel than the next one down."¹⁴ Historically, showmen and women have had to be adaptive, to bend their shows to the popular culture of each era to keep themselves relevant to the paying public, this demonstrates a collective capacity to learn and adapt, which are features of social resilience. Moreover, the adjustments to the fairs went further than 'a lick of paint'; the fairs brought innovations and inventions to the common man, "electric lighting was probably seen by most people for the first time at their local fair"¹⁵ and "for the first 13 years of its life, cinema belonged to the fairground, and was born on the fairground."¹⁶

The expression, however, that showpeople will always, "bend rather than break,"¹⁷ stated by Miller, describes the tendency for showmen and women to persevere endlessly in spite of change, despite previous testaments of adaptability. Both of my interviewees, Miller and Thomas, shared the opinion that very little as a community is done in terms of mobilisation, and so some things aren't collaboratively discussed or challenged. This is perhaps a compromise in order to protect themselves against the discrimination and abuse they can expect to receive: "We're a hidden community and it suits us to stay that way otherwise people object to us."¹⁸ Is 'Collaborative resilience', where people assemble to participate in some action which in effect builds resilience, present in this group or is it thwarted due to stigmatisation and discrimination? Both interviewees impressed on me that it is considered better to endure against chronic stresses that undermine the community, than to engage in collective mobilisation efforts against these

¹³ Candace Thomas, *The Showmens Guild, the Showpeople ethnic identity and the future of the community*, 2017.

¹⁴ *Showland: Behind The Scenes At The Fair*, DVD (Mitch Miller, BBC 2, 2014).

¹⁵ *All the Fun of The Fair: A History of the British Fairground*, DVD (BBC 4, 2014).

¹⁶ *Ibid.*

¹⁷ Mitch Miller, *Showpeople's lives and history, the Commonwealth Games, and the future of the community*, 2017.

¹⁸ Candace Thomas, *The Showmens Guild, the Showpeople ethnic identity and the future of the community*, 2017.

external forces and face worse outcomes. Showpeople are accepted by Scottish Parliament as an ethnic minority group although no test case has ever been through the courts and consequently there is a lack of legal recognition, "a significant aspect of the exclusion endured by Gypsies and Travellers is the substantive denial of ethnic minority status and corresponding rights."¹⁹ If there is no legal recognition that the group is an ethnic minority, they are greatly undermined firstly in the sense that they are denied rights other minority groups have, and secondly because public action is not seen as an appropriate approach, they cannot effectively fight abuse. This vulnerability keeps showpeople under discriminating scrutiny no matter how hidden they wish to be, "Gypsy/Travellers remain the most vulnerable group in terms of cultural discrimination, social marginalisation and lack political participation."²⁰

On the other hand, there is an informal assimilation that the showpeople enact whether they are consciously aware of it or not, and that is the coming together for the fairs. This collaborative assembly brings the itinerant community together in a religious harmony where regardless what year you attend a certain fair, you'll know your pitch and find it waiting for you, "you know next year you'll come, you'll find it, just like a big jigsaw puzzle, everyone knows their position."²¹ Business and social organisation are intrinsically linked for the showmen and women, reinforcing their collective identity, so much so that "when authorities tried to close Appleby Fair in 1965 and to prevent them from assembling at Epson in 1967, they united in protest: the nearest [they have come] to an organized demonstration of national solidarity"²² This shows that threats to the business of fairs, has the ability to mobilise this stigmatised hidden group and make them visible and willing. What the showpeople lack in formal organisation and mobilisation they make up for "with periodic assembly and intense emotional

¹⁹ Sarah Cemlyn and Colin Clark, "The Social Exclusion Of Gypsy And Traveller Children", in *At Greatest Risk: The Children Most Likely To Be Poor*, 1st ed. (London: Child Poverty Action Group, 2005), 150-165.

²⁰ Emilia Pietka et al., *Gypsy Travellers In Contemporary Scotland* (BEMIS, 2011), http://bemis.org.uk/docs/gypsy_travellers_in_contemporary_scotland.pdf.

²¹ *Showland: Behind The Scenes At The Fair*, DVD (Mitch Miller, BBC 2, 2014).

²² Sharon B. Gmelch, "Groups That Don't Want In: Gypsies And Other Artisan, Trader, And Entertainer Minorities", *Annual Review Of Anthropology* 15, no. 1 (1986): 307-330, doi:10.1146/annurev.anthro.15.1.307.

interaction,"²³ so that although not explicit or structured there is an invisible form of resilient collaboration at work.



40 Fairground scene, 1960s, G. Newth
; photograph, National Fairground and Circus
; Archive

²³ Sharon B. Gmelch, "Groups That Don't Want In: Gypsies And Other Artisan, Trader, And Entertainer Minorities", *Annual Review Of Anthropology* 15, no. 1 (1986): 307-330, doi:10.1146/annurev.anthro.15.1.307.

LESS ROMANTIC ABOUT THE WAY THINGS USED TO BE

A relatively recent reformation in the show-children's education, was brought about by a collection of women in the community. Growing frustrated with their children not receiving the attention needed to keep them in school, and the general belief in the community that it was the 'traveller way' to not pursue a formal education, they decided to take action. "Back then, we were reliant on the goodness of each school to understand the situation of travelling children, there was always someone to help me in school but also always bullying."²⁴ Children of the community can be isolated in their learning environments, as either there is racial abuse, or they have to travel at some points in the school term dates and are penalised for it, or their places are given away after the summer vacation, or that they are so frustrated by the social exclusion they experience in school that they exclude themselves. The effort that brought a change was through the creation of an Education Liaison Officer in the Scottish Showmens Guild who would liaison between the families and the school, officiating the needs of the children, "they pushed to make schools realise that you have to address the issues rather than ignore them."²⁵ Furthermore, creating links with the Glasgow's Education official at the time, greatly boosted the accommodations the schools made for the children, proving that when local leadership supports the community the most effective results are realised.

As the business pattern of fairs fluctuates these women realised the value of encouraging an formal education for the children, as their futures are more uncertain than it would have been for their predecessors, this ability to 'capacity build' fosters resilience. "Equality of access to education and achievement is therefore important to Gypsies' and Travellers' future economic well-being as well as their engagement in political and civic life."²⁶ The successes in creating more equity for the show-children in schools demonstrates a collaborative action to create social mobility, the opportunity

²⁴ Candace Thomas, *The Showmens Guild, the Showpeople ethnic identity and the future of the community*, 2017.

²⁵ *Ibid.*

²⁶ Sarah Cemlyn and Colin Clark, "The Social Exclusion Of Gypsy And Traveller Children", in *At Greatest Risk: The Children Most Likely To Be Poor*, 2005, 150-165.

for adaptability if a child chooses to better their educational status. The emerging generation, through a strengthened relationship with teachers and children outside the showpeople community, are encouraged into an engagement with therefore the wider community, civic life, and politics. "I think there's a lot of hope in this current generation to challenge that [the public opinion on travellers]. It's the first generation to go to school and take up education, and so they're less romantic about the way things used to be and more switched onto the reality of things today."²⁷

On the other hand, the more the emerging generation integrate into their schools and thus the social fabric of their locale, the less mobile their families can be, as they make sacrifices to hold onto the gained rights and relationships. This poses an interesting dilemma which pits travelling showmanship, which is a livelihood and identity, against social mobility. Perhaps, 'the way things used to be' was resilient for that time and context and the evolution of the next generation, is an adaptation for the looming stress of employment instability, which doesn't necessarily degrade the identity of the community, because it's being strengthened in other ways.

²⁷ Mitch Miller, *Showpeople's lives and history, the Commonwealth Games, and the future of the community*, 2017.

THE SCOTTISH SHOWMEN'S GUILD

"The formation of the United Kingdom Van Dwellers Association in 1889 was the most decisive and important event in the history of travelling showpeople as a community."²⁸

The Van Dwellers Association, which today is known as The Showmens Guild, was the first (and only) organisation for Showpeople to fight for their rights, specifically setup to contest the Moveable Dwellings Bill in 1888. The bill sought to restrict the movements of travellers and so was a direct attack on their collective cultural identity. The leading showmen of the era came together at the Black Lion Hotel in Salford to assemble a strategy to fight the bill.²⁹ This led to a membership fund being created to gather funds and a collective assembly of showmen against the bill. Exemplar qualities of social resilience can be found in the way in which the community organised against this threat behind Thomas Horne who led the "vigorous campaign in the press against Smith's proposed legislation...[and] travelled throughout the country, preaching to the showmen, and devoting time and attention to getting new members from the travelling fraternity."³⁰ A testament to the success of the organisation is in the 500 showmen who signed up to the membership in its first year, and eventually the effective defeat of the bill.

Despite this historic win against politicised vilification of travellers, the Showmens Guild went on to become an organisation which regulates fairs and liaisons between showmen and official figures. Thus a gap formed where there once stood as an organisation championing showpeople rights as the Guild became more bureaucratic and administrative than transformative, "I suppose people look to the Guild for a response, but at the same time it's a limited response because they're mainly dealing with right to fairs business."³¹

²⁸ National Fairground and Circus Archive University Sheffield, "The Showmen's Guild Of Great Britain", *Sheffield.Ac.Uk*, 2017, <https://www.sheffield.ac.uk/nfca/collections/showmen>.

²⁹ Ahmed Iqbal Ullah Education Trust, "The Showmen's Guild Of Great Britain—History", *Theshowmensguild.Com*, accessed 12 April 2017, <http://www.theshowmensguild.com/History.html>.

³⁰ National Fairground and Circus Archive University Sheffield, "The Showmen's Guild Of Great Britain".

³¹ Mitch Miller, Showpeople's lives and history, the Commonwealth Games, and the future of the community, 2017.

A prime example of the nature of the Showmens Guild's role today, can be found in their reaction to the recent case brought against them by the Competition and Markets Authority who allege that the Guild's rules are in breach of competition laws.³² Spurred by a dispute between two showmen over pitches; one showman's complaint of unfair practise has led to an investigation of over 50 show family members and the Showmens Guild.³³ In response the Guild is spending "thousands of pounds in lawyer fees,"³⁴ trying to find a loophole in CMA's case, which could prove futile. Losing this case could mean unravelling the way business is conducted in this community which would prove fatal for their future well-being, as the fairs represent much more than a business, it's a collaboration, a social organisation, and ultimately a way of life. This is why it is dubious as to why the Guild isn't representing the rules of the business of fairs as more than just a business. By underplaying the cultural heritage of the fairs, and taking a bureaucratic approach, the Showmens Guild isn't representing the showpeople as well as they used to.

Does the Guild, which is a small collection of volunteers from within the community, have the capacity to organise the business of fairs alongside combatting every other crisis that the community face? This therefore suggests the need for another platform to support the existing organisation but with more focussed aims on gaining showpeople legal rights. The form of this platform however needs to come from the community itself as an active means of building their social resilience.

³² Competition and Markets Authority, "Funfair Body Alleged To Have Broken Competition Law", *Gov.Uk*, 2016, <https://www.gov.uk/government/news/funfair-body-alleged-to-have-broken-competition-law>.

³³ Candace Thomas, *The Showmens Guild, the Showpeople ethnic identity and the future of the community*, 2017.

³⁴ *Ibid.*

CASE STUDY: WHEN THE GAMES CAME TO THE SHOWMAN'S QUARTER

"Gypsies and Travellers have been rendered 'invisible' in many policy debates and, conversely, highly visible when their physical presence on an unauthorised site upsets the local settled community."³⁵



4 | Fair Display at the
Riverside Museum

³⁵ Sarah Cemlyn and Colin Clark, "The Social Exclusion Of Gypsy And Traveller Children", in *At Greatest Risk: The Children Most Likely To Be Poor*, 2005, 150-165.

THE HISTORICAL CASE OF THE CLYDE AND THE SHOWMAN'S QUARTER, AND HEALTH INEQUALITY

As the Glaswegian showchildren become more tied to schools and the elderly, for the first time ever, begin to retire,³⁶ a more sedentary lifestyle is being adopted by many. The East End of Glasgow has historically been the home to this community, so much so that it has been informally referred to as "The Showman's Quarter"³⁷. The largest collection of winter sites in Glasgow are found in the East End and so subsequently more sedentary residents have made these yards their permanent homes. Cuningar Estate is one of these sites where 51 out of the total 58 plots are home to community members who no longer travel the fairs.³⁸

The East End sites can be viewed in the wider context of Glasgow, as a concentration on the riverfront, refer to Figure 4. In Dalmarnock the yards are hemmed between the Clyde and the railway, with industry around. Another concentration on the riverfront can be found to the West in Partick and Govan. These areas centred on the river have previously played a historic role in the making of the city, "The Clyde made Glasgow and Glasgow made the Clyde."³⁹ The River Clyde flowing into the North Atlantic Ocean, connected Glasgow to the Americas and the Caribbean, enabling transatlantic trade of cotton, sugar, rum, and tobacco and so made Glasgow "the second city of the Empire."⁴⁰ Glasgow then went onto make the Clyde a world-class port, which at one point made a fifth of all the ships in the world.⁴¹ This profound industrial activity has left remnants in the environment, in the form of increased concentrations of metal in soil. A study by the British

³⁶ William T. Burns, "The Show People's City" (DipArch, Mackintosh School of Architecture, 2015).

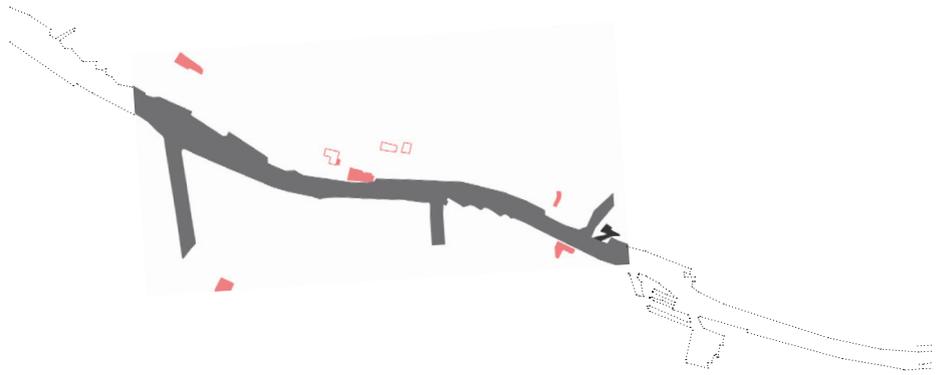
³⁷ Mitch Miller, "50-Odd Yards Long: Introducing The Showman'S Quarter Of Glasgow", *Dialectograms.Com*, 2010, <http://www.dialectograms.com/50-odd-yards-long-introducing-the-showmansquarter-of-glasgow/>.

³⁸ William T. Burns, "The Show People's City", 2015, 45.

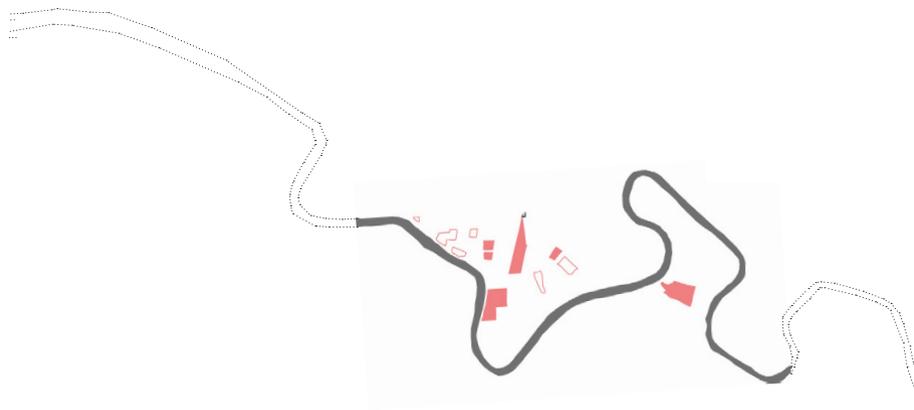
³⁹ Jane Bernstein and Rodge Glass, *Second Lives: Tales From Two Cities*, 1st ed. (Glasgow: Cargo, 2012), 201.

⁴⁰ *Ibid*, 200.

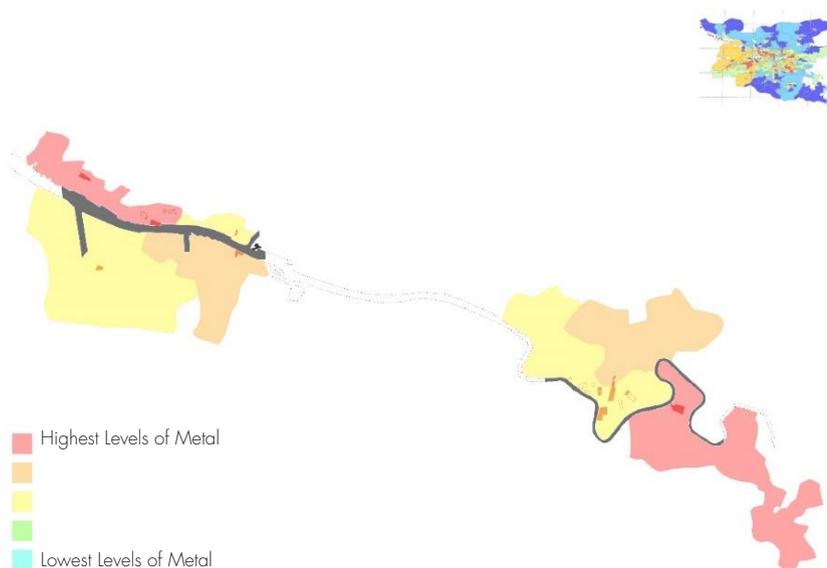
⁴¹ Brian Evans et al., *The Resilient City Glasgow & Pittsburgh (Draft)*, 1st ed., n.d.



42 Showpeople Sites along
the Clyde



Geological Survey found: "Higher individual soil metal concentrations and combined soil metal index scores were recorded in the south-west Glasgow— Paisley area; the shipbuilding centre in the River Clyde corridor to the west of the city centre and in the former industrial heartland in the east of the city."⁴² The latter two locations are places where a concentration of showpeople sites can be found. Mapping the concentrations of showpeople sites onto the geological survey information, see Figure 5, illustrates that the aforementioned sites in the vicinity of the River Clyde are also found on land with relatively higher levels of contamination than in other areas of the city. The previously mentioned study concluded that, "there is a spatial association between deprivation and poor soil chemical quality".⁴³



43 Showpeople Sites and Soil Metal Concentrations

⁴² S. Morrison, F. M. Fordyce and E. Marian Scott, "An Initial Assessment Of Spatial Relationships Between Respiratory Cases, Soil Metal Content, Air Quality And Deprivation Indicators In Glasgow, Scotland, UK: Relevance To The Environmental Justice Agenda", *Environmental Geochemistry And Health* 36, no. 2 (2013): 319-332, doi:10.1007/s10653-013-9565-4.

⁴³ *Ibid.*

Showpeople are concentrated in post-industrial areas partly due to its affordability as developers cannot utilise brownfield sites unless a large amount is invested into remediation activities, which Glasgow City Council has continued to do in order to encourage development.⁴⁴ Brownfield sites in some respects are the most appropriate places in the city for showmen yards as they offer privacy and abundant space for the storing and repairing of large equipment and lorries, however on the other hand it has been suggested they impose health inequalities. One study in 2006 on traveller health, commissioned by the National Inclusion Health Board, found "poor air quality, proximity to industrial sites, asthma and repeated chest infections (particularly amongst children and the elderly) were noted in around half of all interviews undertaken ..."⁴⁵ Metal air particulates contribute to air pollution, and so there possibly is a relationship between post-industrial environments afflicting poorer health, especially on the most susceptible in the community. A report on health inequalities conducted by The University of Sheffield, found almost a fifth (17.6%) of the traveller mothers interviewed, had experienced the death of a child. It can be argued that the travelling community are challenged with a relatively higher amount of sickness and death which could be partly due to the physical environment.

In Scotland there is no legal obligation for local authorities to provide sites for travellers to rent, and it is rather the "toleration policies of local councils"⁴⁶ that travellers have to rely on. This has led to the majority of sites today in Glasgow being bought by one showman or a collection of showmen in the community who sublet places in the site.⁴⁷ "The effective privatisation of site provision after the CJPOA [Criminal Justice and Public Order Act 1994] has led to many families (who could afford to) turning their backs on local authority sites, only to face discrimination in the planning system followed by

⁴⁴ "Progress Being Made On Reducing Amount Of Vacant And Derelict Land In Glasgow", *Glasgow.Gov.Uk*, 2016, <https://www.glasgow.gov.uk/index.aspx?articleid=20173>.

⁴⁵ Margaret Greenfields and Matthew Brindley, *Impact Of Insecure Accommodation And The Living Environment On Gypsies' And Travellers' Health* (National Inclusion Health Board, 2016), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/490846/NIHB_-_Gypsy_and_Traveller_health_accs.pdf.

⁴⁶ Sarah Cemlyn and Colin Clark, "The Social Exclusion Of Gypsy And Traveller Children", in *At Greatest Risk: The Children Most Likely To Be Poor*, 2005, 150-165.

⁴⁷ William T. Burns, "The Show People's City", 2015.

evictions, courts and hostile newspaper reporting."⁴⁸ The aforementioned discrimination the showpeople face, is not limited to the political sphere; showpeople are greatly undermined spatially as well. If sites are found and bought into the community, they have to receive planning permission to use them as accommodation or for storage of equipment. This is usually a struggle to receive and, if attained, filled with conditions which leads to multiple applications over continuous years being submitted in order to gain 'permanent use'.

It is therefore no surprise that "the most vulnerable group"⁴⁹ in society would live in the unhealthiest parts of the city, where "the average life expectancy at birth for men round these parts is 68.1 years, five years lower than the Scottish average."⁵⁰ In literature it has been noted that there is a link between social and ecological resilience. Adger argues that, "stress, in the social sense, encompasses disruption to groups' or individuals' livelihood and forced adaptation to the changing physical environment."⁵¹ The chronic social stress manifesting as poor health can be seen as a result of the reduced environment.

Despite these shortcomings, which paint a picture of health poverty, showpeople enjoy living together on these yards because they've adapted in such a way that enables them to continue in spite of reported higher levels of illness. "For the showfolk, for the most part, the yards are a safe and supportive space in which you live near relations and people you have known your whole life."⁵² It is precisely this support, relations and connectedness, that enables extraordinary resilience in the face of social stress brought about by health inequalities: "42% of respondents were

⁴⁸ Sarah Cemlyn and Colin Clark, "The Social Exclusion Of Gypsy And Traveller Children", in *At Greatest Risk: The Children Most Likely To Be Poor*, 2005, 150-165.

⁴⁹ Emilia Pietka et al., *Gypsy Travellers In Contemporary Scotland*, 2011.

⁵⁰ Audrey Gillan, "The People Of Glasgow's East End Are Many Things, But They Are Not Pampered", *The Guardian*, 2012,

<https://www.theguardian.com/commentisfree/2012/may/15/glasgow-east-end-people-not-pampered>.

⁵¹ Neil. W Adger, "Social And Ecological Resilience: Are They Related?", *Progress In Human Geography* 24, no. 3 (2000): 347-364, doi:10.1191/030913200701540465.

⁵² "Scotland's 4,000 Showfolk Are Finding Times Hard, But All Are Determined To Keep Their Wagons Rolling", *Scotsman.Com*, 2011, <http://www.scotsman.com/lifestyle/scotland-s-4-000-showfolk-are-finding-times-hard-but-all-are-determined-to-keep-their-wagons-rolling-1-1667111>.

involved in helping to care for immediate household members or wider family on site or in the immediate vicinity who had severe long-term conditions or were disabled... significantly above the rate found in mainstream populations."⁵³ Although, a more sedentary life has been adopted on brownfield land which arguably has brought about chronic stresses, the cultural values remain and sustain the communities' resilience, enabling the adaptation from 'a village on wheels' to a more rooted community.

⁵³ Margaret Greenfields and Matthew Brindley, *Impact Of Insecure Accommodation And The Living Environment On Gypsies' And Travellers'*, 2016.

THE EFFECT OF THE 2014 COMMONWEALTH GAMES ON SHOWPEOPLE RESILIENCE

Being in the vicinity of the Clyde on brownfield land maintained a stress on the community. Imminent regeneration could undermine the showpeople by viewing them as transient, and therefore excluding them from the social and economic developments planned for the area. Professor David Harvey (FBA), in *The Right to The City*, takes this idea of exclusion further by suggesting that, "Urban transformation...nearly always has a class dimension since it is the poor, the underprivileged and those marginalized from political power that suffer first and foremost."⁵⁴ The notion is that neoliberalism encourages individual responsibility which has led to an era of economically driven urban transformations which seeks to make consumers out of citizens.⁵⁵ In the case of the regeneration in Dalmarnock, the approach has been criticised as, "draws attention away from more fundamental structural inequalities."⁵⁶ In other words, the regeneration led by Clyde Gateway in Dalmarnock, has been considered underwhelming in terms of the social initiative as the regeneration agency failed to examine existing inequalities and therefore deliver place-based solutions, "its legacy will not be felt equally by all of Glasgow's citizens nor by all of those residents remaining in the East End."⁵⁷

On the other hand, the Commonwealth Games was successful in creating affordable housing which diversified the East End housing stock, and in reducing the amount of vacant and derelict land in the area (refer to Figure 8).⁵⁸ Additionally, Glasgow's legacy approach has been praised on a strategic level, "as an example of successful partnership working,"⁵⁹ evidence

⁵⁴ David Harvey, "The Right To The City", *International Journal Of Urban And Regional Research* 27, no. 4 (2003): 939-941, doi:10.1111/j..2003.00492.x.

⁵⁵ Kirsteen Paton, Gerry Mooney and Kim McKee, "Class, Citizenship And Regeneration: Glasgow And The Commonwealth Games 2014", *Antipode* 44, no. 4 (2012): 1470-1489, doi:10.1111/j.1467-8330.2011.00966.x.

⁵⁶ *Ibid.*

⁵⁷ *Ibid.*

⁵⁸ Games Legacy Evaluation Working Group, *An Evaluation Of The Commonwealth Games 2014 Legacy For Scotland Report* (Scottish Government, 2017), <http://www.gov.scot/Publications/2012/10/9710/8>.

⁵⁹ Linda Christie and Kenneth Gibb, "A Collaborative Approach To Event-Led Regeneration: The Governance Of Legacy From The 2014 Commonwealth Games", *Local Economy* 30, no. 8 (2015): 871-887, doi:10.1177/0269094215603953.

of which is the games being delivered on budget. However it doesn't discredit the notion that the lasting social legacy of the Commonwealth Games is exclusive. "For those who benefited directly from the affordable housing created for the Games, the social legacy of the event is undeniable – but there is also troubling evidence that it actually increased the stigmatisation of east end residents, who felt excluded..."⁶⁰ The 2014 Commonwealth Games was promised to be built on community engagement,⁶¹ among other things, yet there is little evidence of a social legacy for the existing communities, particularly in the case of the showpeople. Instead of being engaged into a proposal of inclusivity they were displaced: "In South and Central Dalmarnock, the regeneration agency identified twenty-six yards that were on land needed for the area's development...thirty-seven show families have already been relocated and a further thirty will move in the future."⁶²

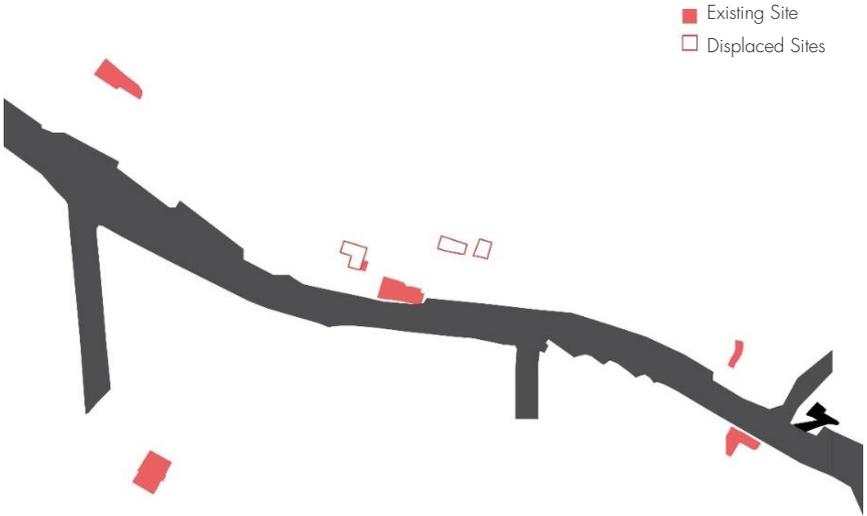
The displacement of show families in the East of Glasgow is strikingly similar to that which took place in Partick/Govan when land again was needed for the area's development led by Clyde waterfront, (refer to Figure 6). It's clear that in both locations at least half the community's population were relocated. To add to this, the initial clearances in Dalmarnock were much more ambitious than the final result which is drawn in Figure 7 which shows the outlines of showpeople sites that were cleared and highlights the sites that remain. The evidence of the initial scheme for the area can be found in Sheppard Robson's masterplanning scheme for South Dalmarnock, (Figure 9) which shows only one collection of showmen sites retained. (And it is the cluster alongside the sewage treatment plant that have survived to buffer the new imagined inhabitants of the area from the toxic plant.) Ironically, it was the 2008 economic crisis which reduced Clyde Gateway's ambition,⁶³ and saved the other half of the inhabitants from moving outwith the city.

⁶⁰ Chris Green, "Glasgow Commonwealth Legacy Is Cashed In As Residents Move Into Athletes' Village", *The Independent*, 2015, <http://www.independent.co.uk/news/uk/home-news/commonwealthgamesglasgow-legacy-is-cashed-in-as-residents-move-into-athletes-village-10412045.html>.

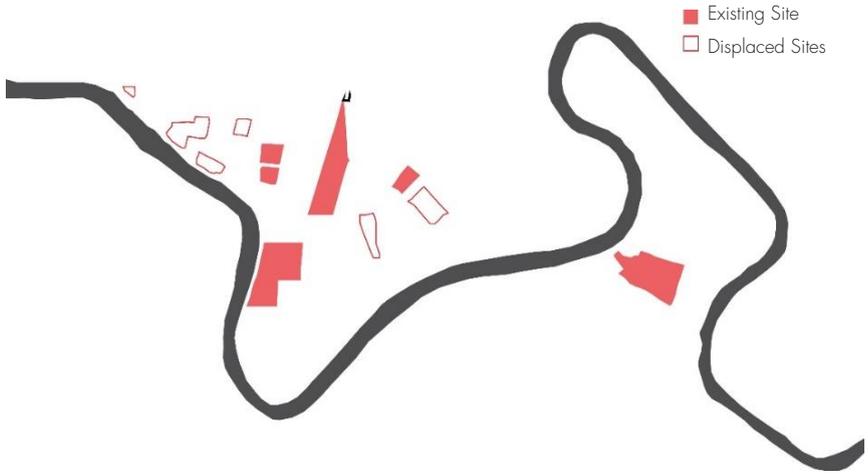
⁶¹ *Clyde Gateway Character And Values*, ebook, 1st ed. (Glasgow: Clyde Gateway, 2009), <http://www.clydegateway.com/downloads/Clyde%20Gateway%20Character%20Values.pdf>

⁶² Alison Irvine, Chris Leslie and Mitch Miller, *Nothing Is Lost*, 1st ed. (Glasgow: Freight Books, 2015).

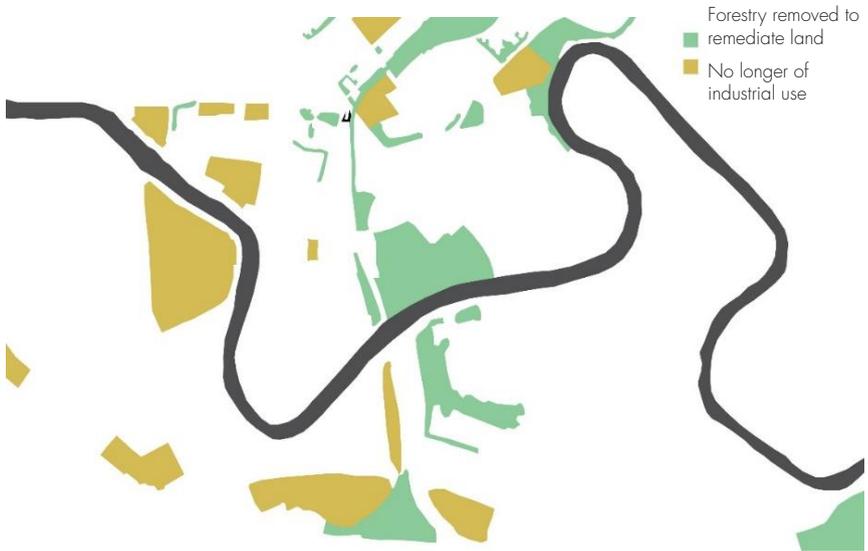
⁶³ Mitch Miller, *Showpeople's lives and history, the Commonwealth Games, and the future of the community*, 2017.



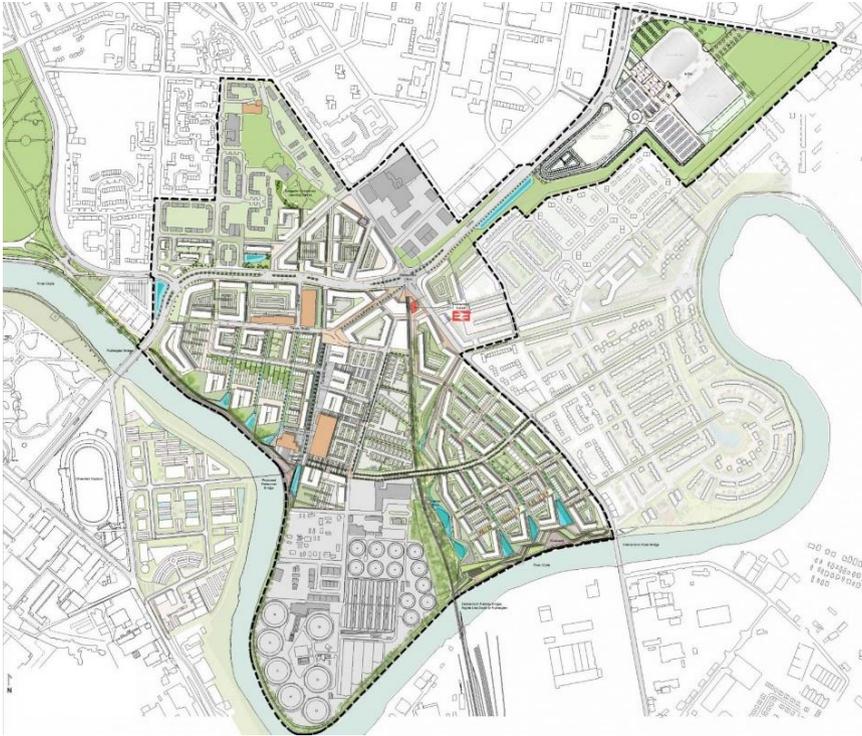
44 | Showpeople Sites in Partick and Govan



45 Showpeople Sites in Dalmarnock



46 Change of Land Use in Preparation for the Commonwealth Games



47 Initial Masterplan for South Dalmarnock

The idea of empowering localism to build resilience is the theory behind successful 'leadership', which is quoted as one of the elements for social capital.⁶⁴ It is the idea that local authorities act as effective leaders whose priority is enabling local businesses and local communities. One thing which becomes apparent in this definition of leadership is –who is local and what does localism mean for an itinerant community?

Vanessa Toulmin, a Professor at the University of Sheffield who has conducted extensive research into showpeople, argues that, "Unlike the common media images, Travellers are not rootless wanderers."⁶⁵ Toulmin argues that travelling showmen and women are profoundly connected to places in complex and intimate ways, whether it be a fair their family has returned to every year for hundreds of years or a church in which every generation in the family has been married. The misleading portrayal of travellers in the media fuels suspicion and resentment, which contributes to the exclusion felt by travellers. The Commonwealth Games exposed this chronic stress, "all of a sudden to the people in Dalmarnock we were new, and no-one knew where we had come from, despite historically being in the East End of Glasgow for 200 years."⁶⁶ In this way this sporting event, which proposed to bring people together exposed tensions between the settled community and the showpeople community. This is where successful local leadership is needed, however the regeneration agencies further intensified the feeling of exclusion towards the community by not incorporating the showpeople into the new master plan for the area. This completely undermines the community's resilience and conversely makes them vulnerable. "If localism is to really be inclusive, it must find ways to reflect the voices of all those bonded to a place, and that should go beyond a permanent address."⁶⁷

Economic resilience champions the idea of place-based solutions because it leads to fair and resilient economic growth which can prevail in times of

⁶⁴ Brian H. Walker and David Salt, *Resilience Thinking: Sustaining Ecosystems And People In A Changing World*, 2012.

⁶⁵ Vanessa Toulmin, "Localism: Whose Voices Will Be Heard By Local Government?", *The Guardian*, 2011, <https://www.theguardian.com/local-government-network/2011/nov/22/localism-whose-voices-local-government>.

⁶⁶ Mitch Miller, Showpeople's lives and history, the Commonwealth Games, and the future of the community, 2017.

⁶⁷ Vanessa Toulmin, "Localism: Whose Voices Will Be Heard By Local Government?", 2011.

crisis. However to truly build social resilience, initiatives must be truly inclusive of all people in society, whether they live in a conventional house or annually travel. The regeneration scheme adopted in Dalmarnock sought to displace existing communities rather than include them. Social legacy took the form of investing in a new neighbourhood, which is innocuous in itself, but when considering the deprivation and health inequalities present in the East End it appears to be an exclusive and isolated legacy, rather than integrated and truly community engaged.



48 Photo of Athlete's Village Separated from Existing Communities by a Barren Field

CONCLUSION

This research study which analysed the travelling showpeople in Glasgow against social resilience concepts, aimed to discern the level of resilience the community fosters. Interviewing two community members from different generations who view their community through different lenses, has given the study context and therefore greatly informed the analysis of the group's strengths and vulnerabilities. The case-study, which examined the effects of riverfront regeneration on a minority group, intended to discern if the showpeople had benefitted from the economic and social developments planned for the respective areas, in the West and East of the city. As discovered in the group research, city resilience is about understanding the complexity of a densely populated area, and so is multi-faceted, - accepting that economic, ecological and social resilience are related. Social economy is as important as public and commercial economy, but is largely undermined in a neoliberal age which seeks growth for the sake of growth and views citizens as consumers. The challenges Glasgow's social environment faces of health and income inequality, was found to be reflected and amplified in the microcosm that is the showpeople community.

It was observed that the showpeople community have the ability to persist although recently this has been in spite of adaptation, and so they struggle to flourish. Stresses the community face include political and spatially exclusion, health inequality, and social immobility, which have each been challenged by the community, illustrating that showpeople possess great vulnerability and great resiliency in equal measure. The lack of social mobility has been met with increased educational efforts, which have proved highly successful and achieved local leadership support. Conversely, the political and spatial exclusion remains ever-present despite past successes in the Showmans Guild which saw the Moveable Dwellings Bill overturned. Travellers are described as 'the most vulnerable group in society' yet Showpeople attain the highest levels of mutual support. The core to social resilience, the ability to collectively engage in collaborative resilience building is realised informally through the coming together for the fairs. This is the invisible binder which has the ability to mobilise this stigmatised hidden group and make them visible and willing. Furthermore, what they lack in health poverty they make

up for in social capital. This social capital however, is not complete, as was found in the case study, because local leadership was missing in the regeneration efforts.

The case study investigations found that the underlying social stress of exclusion experienced by showpeople was brought to the surface during regeneration efforts, due to a lack of local leadership to empower the community. There's little evidence that the interventions in Dalmarnock, of new albeit isolated housing and newly remedied land, has improved the lives of showpeople. Arguable it has undermined them by excluding them from the masterplanning of the area. Place-based solutions which would have sought to greater understand the structural inequalities of the area, could have actualised a more integrated social legacy for all.

Social resilience which is concerned with the welfare of communities has the ability to foster city resilience because by challenging inequities at a community level, cities engage in remedying chronic social stresses in the macrocosm. Glasgow City Council realises this, as empowering communities is a key element to their resilience strategy. The hypothesis that the showpeople community are resilient and contribute to the city's resilience, has not been met as successfully as initially thought it would have been. In some aspects this is due to the fact that they are ill-supported by policies, laws and sometimes local leadership. Their future is very much reliant on their ability to make their invisible collaborative resilience visible, as social resilience is built on hope as opposed to anxiety. Although the task is challenging, it is necessary, as ultimately a more equitable city makes for a more resilient city.

CONCLUSION

CONCLUSION

Urban population around the world is increasing, placing pressure on cities to learn from and adapt to the challenges of 21st Century urban living. Adopting a Resilient City Strategy strengthens and enhances a city's capacity to cope with underlying 'stresses' as well as substantial and sudden 'shocks'. This book aimed to analyse resilience concepts, and apply our understanding of the theory to analyse the Resilient City Strategy of two prototype post-industrial cities in the US and Europe, Pittsburgh and Glasgow respectively. This was then followed by further in-depth research on particular aspects of resilience, flooding and water, adaptive re-use, housing, and, community resilience and minority groups.

Following our contextual research, it can be concluded that building urban resilience involves adaptability as opposed to intervention. The interlinked and interdependent aspects of a city: the social, ecological, economic and physical, create a holistic resilience strategy which is more likely to be successful. As 'resilience' seeks not to isolate shocks, stresses and risks into individual components, but rather acknowledge that everything is interlinked, it proposes that cities develop through a spread of focus into many domains, in order to improve the functioning of the city as a whole. This planning theory seems to be the next logical step following on from 'sustainability' and 'liveability' concepts, and particularly gathers importance as more frequent and unprecedented shocks knock-back cities. Instead of looking at past methods of intervention, 'resilience' incorporates a level of adaptability and change, which allows for contingency.

Resilience should not afford the ability of a city to "pre shock or stress norms". Alternatively, metropolitan areas should strive to avert any repeat of these circumstances. This is reflected in the ancient Latin origins of the word "resilience"— to bounce back.

Initially Resilience seems like a clear measure of a city's ability to react. However, following further investigation it was determined the concept can be highly bespoke from city – to city depending on the particular needs of that metropolitan area and what they feel is a best-suited, measured response. This is evident when comparing Glasgow and Pittsburgh's resilience strategies.

FLOODING RESILIENCE

Disaster strikes often without warning, therefore it can often be difficult to prepare and prevent sudden shocks - such as flooding. Flooding can cause extensive damage to the physical infrastructure of a city - therefore potentially cause long term "stress" if repairs are prolonged. These shocks also have the potential to cause stress of harm to the wider city population. Therefore it is important to have plans which prevent in the impact of flooding and implement flood protections afterwards minimising the chance of a repeated incident.



HOUSING RESILIENCE

Housing is vital in the resilience of cities as it provides a base that supports many of the other factors considered pivotal in supporting resilience. This research project has conveyed that it is not only physical resilience of housing which is important in contributing to the overall resilience of cities, but that housing for resilient cities should afford the opportunity to support the social structures of communities and individuals, therefore creating greater social resilience within the city.



ADAPTIVE REUSE

Studying the Adaptive Reuse of vacant buildings within two city centres, demonstrated similar approaches to reviving central areas in different contexts. Resilience in city planning repurposes adaptive reuse, and in doing so, it can establish communities and neighbourhoods in an environmental and culturally conscious way. Adaptive reuse values what has been carried out before - flexible, robust and able to withstand years of neglect and disinvestment, the buildings from the industrial age have proven to become intrinsic parts of cities through reuse.



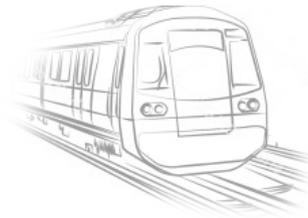
SOCIAL/COMMUNITY RESILIENCE

Resilience in the social context can be concluded as empowering groups of people, such as local originations or stigmatised groups, in order to strengthen social capital. Specifically, it is thought to be garnered through the ability to learn and adapt, and through collective collaboration efforts. This means the through communicative of participatory means groups of people can build their collective resilience. Resilient communities who thrive from great social capital will help contribute towards the resilience of the wider city region.

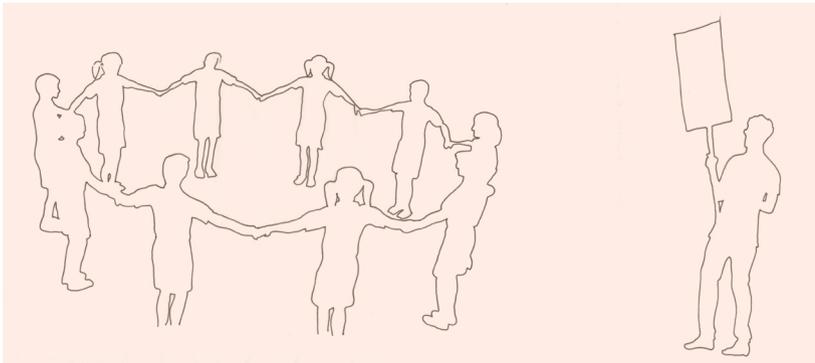




physical
resilience of city
infrastructure



social resilience of
communities contribute
to the resilience of a
wider city region.



Glasgow's resilience strategy pivoted towards a holistic approach, which is focused upon encouraging mass engagement and promoting the population to become more involved in the running of the city – as it aims to “empower citizens”. However, Pittsburgh's resilience strategy is contrasting as it focuses more on the physical resilience of infrastructure such as transport networks and flood defences. We feel both are valid arguments and vital in moving forward.

The in-depth research conducted into particular aspects of resilience, furthers the debate of -what makes a city resilient? A sustainable means of development is paramount to the resilience of a city, and each of the aspects explored argue a means to this end. Adaptive reuse illustrates a strategy which utilising existing buildings and structures to create new spaces sustainably while also retaining a social memory of the place. Establishing a holistic strategy for water and its infrastructure in cities can moderate flooding and reduce water scarcity. A high quality and abundant housing stock in a city tackles health deprivation and aids social mobility. Finally, strengthening communities and minorities engages in remedying chronic social stresses in the macrocosm, which in effect leads to a more equitable city. Ultimately, it is the combination of all these aspects and strategies that together pursue a more resilient society for all resident. Recent devastation of natural and circumstantial event on cities - such as terrorism - have made us question our cities and aspects of our society ensuring we establish strength and ability to withstand these unpredictable events.

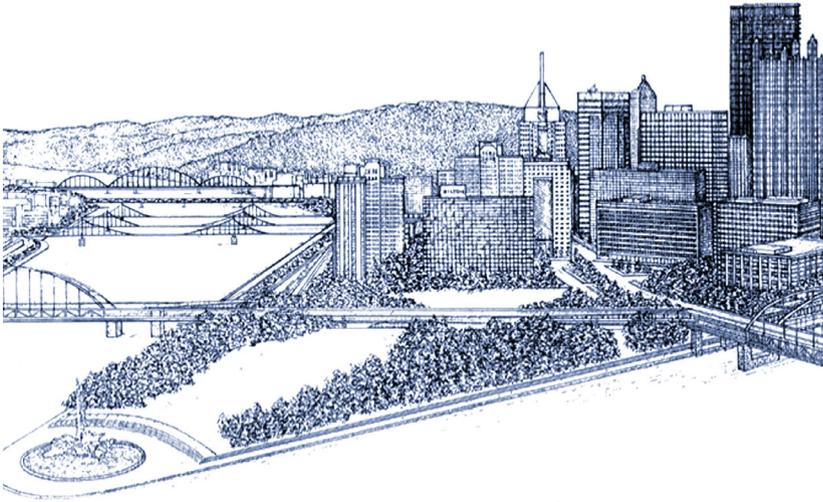
We established a link between a cities physical urban fabric and the social, economic and ecological resilience of an urban settlement. This is evident through the study of substandard housing and detrimental impact it has had on the social resilience of communities in various urban settlements. This is further demonstrated when discussing measures which have been taken as a preventative measure to minimize physical damage to vital city infrastructure or cause harm to the population, or which would have a detrimental impact on the wider resilience of the city in sudden shocks – such as flooding.

The physical built environment can have a detrimental impact on the social and economic resilience of a particular area or wider urban settlement, poor urban realm and badly maintained buildings or property will cause devaluation, if such redundant buildings are gradually left to

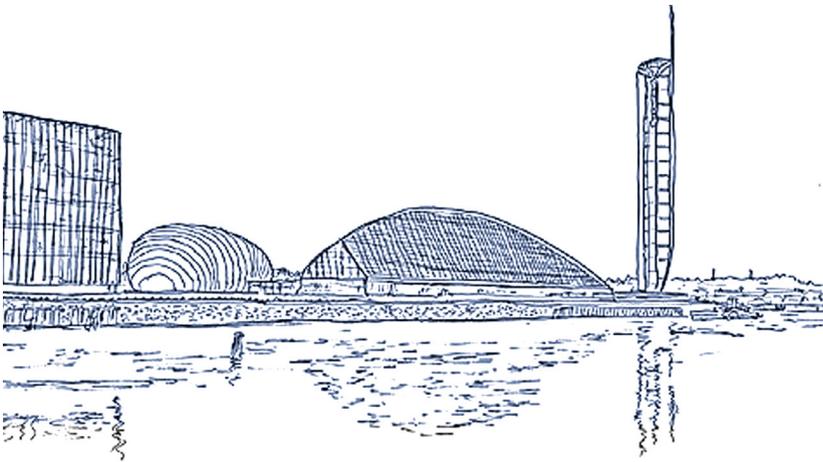
deteriorate into a dilapidated state causing the vitality, density of the area to decline and community identity to become tarnished. These socioeconomic and social-ecological aspects are further identified as part of an investigation into the resilience of minority communities that are often forced to foster resilience in the face of adversity. The vulnerabilities of specific minority communities can have a detrimental effect on the wider city resilience.

This research has demonstrated that resilience of cities it must support the entire population demographic – specifically those in the lower income brackets. Our research into minority communities also further conveyed that the welfare of various communities has the ability to foster the resilience of the wider city by challenging inequalities at a community level. This is conveyed in the Glasgow resilience strategy, which aims to empower communities. It can be assumed that many communities, which are less socially resilient, feel that they are ill supported, by policies on a national and local level. This ultimately conveys that a more inclusive and equitable city is ultimately more resilient.

However, one of the issues regarding city resilience is the broad range of topics encompassed to create a truly resilient city. There seems to be a lack of any way to measure resilience as cities often have existing policy in place to tackle stresses and response to a shock can't be measured until the incident actually occurs. It will be this period following the culmination of the 100RC project, which will ultimately test the ideal of "resilience" as a factor in urban planning. As the Rockefeller 100RC project matures and the multi million-dollar investment from the Rockefeller Foundation also gradually declines, 100 cities involved in the initiative should be studied establishing if commitment to resilience continues or whether interest also gradually dwindles.



Pittsburgh viewed from the Monongahela River



Glasgow viewed from the River Clyde



Group Meeting
7th April 2017

Group Meeting
7th April 2017



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